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ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

OF THE

PROVINCE OF ALBERTA

FOR THE YEAR

1960

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PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY

EDMONTON, ALBERTA
Printed by L. S. WALL, Queen's Printer for Alberta
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To His Honour,
J. PERCY PAGE,
Lieutenant Governor of the Province of Alberta.

Sir:

I have the honour to submit herewith the Report of the Department of Agriculture for the year 1960.

I have the honour to be, Sir,
Your obedient servant,
L. C. HALMRAST,
Minister of Agriculture

DEPARTMENT OF AGRICULTURE

1960

HON. L. C. HALMRAST, Minister of Agriculture

R. M. PUTNAM, Deputy Minister of Agriculture

HEADS OF BRANCHES

A. M. Wilson, Field Crops Commissioner

W. H. T. Mead, Live Stock Commission

D. H. McCallum, Dairy Commissioner

R. H. McMillian, Poultry Commissioner

R. W. Gillies, Fur Farm Supervisor

F. L. Grindley, Director of Water Resources

S. S. Graham, Director, Extension Service

E. E. Ballantyne, V.S., D.V.M., Director, Veterinary Services

J. E. Hawker, Superintendent, Schools of Agriculture and Home Economics

C. L. Usher, Supervisor, 4-H Clubs

E. B. Swindlehurst, Supervisor, Radio and Information Branch

H. W. Gaebel, Secretary-Accountant

G. R. Sterling, Chairman, Land Conservation and Utilization Committee

Arnold J. Lavoie, Provincial Co-ordinator, Alberta Emergency Measures Organization

C. J. McAndrews, Colonization Manager

Report of the Deputy Minister

(R. M. Putnam)

The Honourable L. C. Halmrast,
Minister of Agriculture.

Sir:

I have the honour to submit the Annual Report of the Alberta Department of Agriculture for the year ending December 31st, 1960.

The crop season was generally satisfactory, except for those areas in south-east Alberta which suffered from drought. An open fall allowed farmers to complete their harvest without difficulty. Pasture and hay crops were large in quantity and high in quality.

Alberta's population of cattle reached record proportions in 1960 with almost 2,700,000 head. Swine numbers were slightly below the previous year. The dairy industry produced more milk, but production of eggs declined from the year before.

The Federal-Provincial Emergency Unthreshed Grain Assistance Policy operated during the spring of 1960. Under this policy farmers who were unable to thresh 50% of the 1959 crop received financial assistance. 17,977 Alberta farmers applied for and 16,946 farmers received assistance totalling $5,215,879.84. These payments were shared equally by the Governments of Canada and Alberta.

In June the Department of Agriculture purchased a ranch, containing 5,600 acres, near Kinsella on which the University of Alberta began a Beef Cattle Breeding Research project. The total expenditure on this project was $93,000.00 for the ranch and an operating grant of $107,000.00. The monies were provided from the Horned Cattle Trust Account.

At the 1960 session of the Legislature the Agricultural Pests Act was rewritten and a Fur Farm Act was passed. An Act was passed to provide authority for the development of the Brazeau dam and power site.

The Fairview School of Agriculture was reopened during the summer. In addition to giving regular courses in Agriculture and Home Economics, it provided classes in academic subjects in accordance with the recommendations of the Cameron Commission on Education respecting Community Colleges.

On April 1st, the Farm Economics Branch was established to consolidate the Department's work in the field of Agricultural Economics.

During the year the Alberta Civil Defence Branch was renamed the Alberta Emergency Measures Organization (E.M.O.). Certain changes accompanied this development. These are explained later in this report.

Good progress was made in the construction of the Brazeau Dam.

The following appointments of senior staff took place this year: Kenneth G. Taylor, as Administrator, Farm Purchase Credit

Act; A. Gordon Ball as Acting Director, Farm Economics Branch; and J. H. Graham as Manager of the St. Mary and Milk Rivers Development.

Mr. P. M. Sauder resigned as Manager of the St. Mary and Milk Rivers Development project on December 31st. Mr. Sauder had earned the title of "Mr. Irrigation" having been engaged with Water Resources and the development of irrigation since 1904. A reservoir on the St. Mary and Milk Rivers Development main canal was named Sauder Lake in his honour.

It is with regret that I record the death of D. C. Folk, Instructor in Farm Buildings, School of Agriculture, Vermilion, since 1945.

On December 31st the staff of the Department numbered 567 persons of whom 212 were classed as technical personnel.

Details of the activities of the various Branches of the Department will be found in the following pages.

Once again I wish to express my sincere appreciation for your counsel during the year and to thank each and every member of the staff for his co-operation and devotion to duty. I also wish to express the appreciation of the Department to all those individuals and organizations who have assisted in many ways in forwarding the programs and policies of the Department of Agriculture.

Respectfully submitted,

R. M. PUTNAM,

Deputy Minister

Report of the Field Crops Branch

A. M. WILSON, Commissioner

O. G. Bratvold, Crop Improvement
W. Lobay and A. W. Goettel, Soils and Weed Control
J. B. Gurba and D. Stelfox, Crop Protection and Pest Control
P. D. McCalla, Horticulture
P. D. Hargrave, Superintendent, Horticultural Station, Brooks
J. W. Edmunds, Apiculture
F. S. Goddard, Special Projects

REPORT OF THE FIELD CROPS COMMISSIONER

A. M. Wilson

The acreage planted to cereal grains continued to decrease. The wheat acreage was down by one hundred thousand acres and oats and barley each by one hundred and ten thousand. This decrease was taken up by increased acreages of flax, rapeseed, mustard and newly seeded hay and pasture crops. Rapeseed increased from forty thousand acres to one hundred and seventy thousand, and flax from five hundred and eight to six hundred and ninety thousand acres. In Southern Alberta mustard acreage increased from eighty thousand to one hundred and forty thousand. This shift in acreage may be attributed to the demand with the resulting higher prices for oil seed crops in the previous year.

The acre yield of cereal grains was above the long term average, with wheat at 19.8 compared to the fifty year average of 18.6. Oats at 41 compared to 34.8 and barley at 28.7 compared to 25.8. Practically all crops were harvested in good condition. The exception was the area east from Athabasca to Lac La Biche and Bonnyville. Excessive late August rains delayed maturity of crops and continued rains prolonged harvest. Most of the legume seed crops of this area are still in the field.

The following table gives the area, yield and production of the principal field crops for the years 1959 and 1960.

	Area		Bus. per Acre		Production	
	1959	1960	1959	1960	1959	1960
	'000 acres				'000 bus.	
Wheat	5,160	5,060	20.8	19.8	107,000	100,000
Oats	2,850	2,730	38.2	40.3	108,000	110,000
Barley	3,610	3,490	30.7	28.7	110,000	100,000
Fall Rye	73	80	18.9	18.8	1,400	1,500
Spring Rye	24	20	13.1	12.5	300	250
All Rye	98	100	17.3	17.5	1,700	1,750
Flax Seed	580	690	11.5	9.3	6,600	6,400
Mixed Grain	272	275	34.9	34.9	9,500	9,600
Peas, dry	4.7	6.2	23.9	19.8	116	123
Potatoes	18.8	20.0	134.9	142.0	2,533	2,800
			—lbs.—		—'000 lbs.—	
Mustard	79.9	140.0	626	479	49,000	67,000
Rapeseed	36.5	170.0	800	735	29,000	125,000
Sunflower Seed	17	6.5	1,000	1,050	17,000	6,800
			—tons—		—'000 tons—	
Tame Hay	2,075	2,200	1.35	1.5	2,800	3,200
Sugar Beets	35	41.4	13.4	13.5	475	558

The south-eastern part of the province received less than normal rainfall and yields were light. Around Wainwright and Vermilion, which was dry in 1959, excellent crops were harvested. Through central Alberta, where much of the crop was snowed under in 1959, crops were very good. With an early spring break-up combining of 1959 crop was completed quickly and there was no delay in seeding.

The Federal-Provincial Policy of assisting farmers with snowed in crops who had less than half their crops harvested by December 15th was administered through the Field Crops office. Payments to farmers were shared equally by the Federal and Provincial Governments. Farmers were declared eligibile if (a) they had a harvestable crop and if less than half was threshed by December 15th; (b) the threshed grain yield was 10 bushels or less per acre. Applications were distributed through municipal offices and councils processed the claims and forwarded them to the Field Crops office for final approval and payment.

The following table shows the number of claims received, the number approved and paid, the number rejected and the total amount paid to farmers.

No. of Claims received	17,977
No. of Claims approved and paid	16,769
No. of Claims rejected	1,208
Total amount paid Farmers	$5,213,519.84

Many difficulties were experienced in the administration of this Policy. The acreage of harvested and unharvested crop, whether it was harvested before or after December 15th and if the crop was taken off for grain or used as fodder was difficult to establish.

Sugar beets and canning crops adjacent to Lethbridge, Taber, Picture Butte and Raymond continued to contribute an important part of the income on irrigated farms. However crops of green vegetables, onions, dry beans, sunflowers and safflower have not increased to meet an apparent market potential. Farmers were hesitant to expand production of sunflowers and dry beans due largely to their inexperience in growing and handling the crops. The production and sale of green vegetables although confronted by steady supplies of well graded import products appeared to be gaining recognition from the trade, but still growers and the trade have not recognized the full benefit they can be to each other.

The acreage of commercial potatoes increased from 11,000 to 13,500. It is of interest to note that about 1,000 acres were grown in the Peace River area to supply far northern markets, approximately 3,500 in the Edmonton district and the remainder on irrigated land of southern Alberta.

Producers renewed their interest in processed potato products by touring Idaho establishments in late October. Arrangements for a conducted tour were made by the Industrial Development sections of the Chambers of Commerce in Idaho and Alberta. Sixty-five growers and representatives of the trade availed themselves of the opportunity to investigate the industry in Idaho and assess possibilities of similar operations in Alberta.

Interest continued in the development of processing methods to hydro cool ear corn so it may reach markets in more acceptable and attractive form. Approximately 600 acres were grown for the fresh market. Competition from an imported well graded and cooled product made disposal at satisfactory prices difficult and indicated the necessity of improved handling methods.

Two hundred acres of onions were grown at Bow Island and 100 at Medicine Hat. The Bow Island crop was severely damaged by hail on July 23rd. The maturity of the crop was delayed and drying in storage was necessary.

To assist growers in the production of specialized crops and to work with processors and the vegetable trade to overcome marketing difficulties the position of Supervisor of Special Crops was established and Mr. Lawrence Jorgenson was appointed to the position.

SPECIAL PROJECTS

The construction program for Seed Cleaning Plants reached an all time high with seven new Plants going into operation during 1960. These were built at Queenstown, Stettler, Provost, Barrhead, Holden, Falher and Rycroft. The Peace River area is now served by three such Plants. Basically the Plants were constructed on the same plan as used last year with only minor modifications.

The 34 Plants, which completed their fiscal year on June 30th, cleaned a total of 6,422, 651 bushels of grain, of which over 6 million bushels were used for seed in the Province.

The following is a summary of the past three years out-put by the Plants:

	1957-58 (23 Plants)	1958-59 (29 Plants)	1959-60 (34 Plants)
Total bushels cleaned	4,715,122	5,801,336	6,422,651
Total bushels seed	4,209,953	5,161,095	6,064,560
Total bushels seed treated (fungicide)	1,304,035	1,662,796	1,795,065
Total bushels seed treated (wireworm)	121,888	252,773	312,190

As in the past most of the grain cleaned was custom cleaned for farm planting. Only 2.6% of the total grain handled was Pedigree Seed and only 5% dockage cleaning.

The Government and Municipal grants were increased by $1,000.00 in 1960 to $17,000.00 in each case. The share capital sold by the local Co-operative Associations, as in the past, and as per the agreements had to at least equal the individual Provincial and Municipal grants. Due to the increased cost of labour and materials, $51,000.00 was only just adequate in most cases.

Some investigations were made with regard to building smaller plants to supply services to farmers in areas of less concentrated grain growing. Results showed that any reduction in size of the present type of plant was not economically feasible, however, investigations will continue.

The policy and program under which these plants are built and operated has been enthusiastically accepted and although they were originally promoted largely for the control of weeds many other advantages are becoming prominent, these include, higher yields, more uniform and earlier maturity, less dockage on harvested grain, improved resistance to disease, improved quality of harvested grain and improved control of fungus diseases and wireworms due to modern treating methods.

Generally the Seed Plants supply an invaluable service to the farmers and operate a financially satisfactory Co-operative enterprise.

Permits for the operation of seed cleaners were again issued, however, requests were fewer as some farmer-owned plants discontinued custom cleaning. Seed Cleaning Plants were inspected by the Field Supervisors of Municipalities and classification permits were issued from the Field Crops Branch on the basis of the inspection report.

CROP IMPROVEMENT

Crop Improvement Demonstration Policy

Six Crop Improvement Projects made up the Policy. Each project was designed to aid District Agriculturists in demonstrating the value of using recommended kinds and varieties of crops, the proper use of fertilizers and the use of improved cultural practices.

Project A—Forage Seed Production

This Project was designed to promote forage seed production in areas where this type of enterprise increases the farm income. Fifty-four applications were received and a total of 2,195 pounds of seed used in this Project.

Project B—Pasture Improvement

The Project was continued to increase farmer interest in the need for better pastures. Four hundred applications were submitted and 45,972 pounds of seed distributed. In addition, 7,040 pounds of fertilizer was distributed.

Project C—Balanced Farming

This Project was used to demonstrate to farmers the value of adapting suitable crop rotations. Assistance by providing forage seed was given in the second year of rotation, at a discount of 25 per cent for 1/6 of the acreage up to a maximum of 25 acres. There were twenty-one applications and a total of 5,695 pounds of forage seed was distributed.

Project D—Field Demonstrations, Crops and Fertilizers

Under this Project seed and fertilizer were supplied directly to the District Agriculturist without cost for their use in demonstrating the value of different kinds and varieties of field crops, and where advisable, the use of fertilizers on these crops. A total of 3,980 pounds of fertilizer and 625 pounds of forage seed were supplied.

Project E—Crop Variety Demonstration Plots

This Project was used by District Agriculturists to demonstrate varietal difference in cereals and the growth habits of forage crops. Seed for rod row plots was supplied free of charge.

Project F—Soil and Crop Improvement on Grey-wooded Soils

This Project was provided to demonstrate to farmers the importance of forage crops and fertilizers in the successful management of grey-wooded soils. A total of 44,763 pounds of seed was distributed to 129 applicants.

Forage Crop Seed Production

Forage seed prices generally were lower in 1960 despite a decline in production. Grass seeds appeared to establish the trend insofar as prices were concerned with fescue the dominant factor. Fescue production almost equalled that of the year previous for the third successive large crop. Much of the 1959 seed crop was still in the hands of Canadian and American seed dealers when the 1960 Canadian crop was harvested. Consequently fescue prices dropped to as low as 7 cents per lb. to Alberta growers. The

Brome crop was light but the Canadian crop as a whole was quite large thus setting the stage for lower prices. Clover seed crops were generally good to fair but prices were lower than the previous year with the exception of alsike.

The following figures give the seed production of the most important forage crops in the years 1955 to 1959 inclusive. The 1960 figures are preliminary estimates only.

	1955	1956	1957	1958	1959	1960
			Thousand Pounds			
Alfalfa	1,100	625	200	1,800	1,427	1,000
Sweet Clover	4,250	6,500	3,500	5,000	2,330	2,000
Red Clover	4,000	1,200	2,500	4,835	2,622	4,075
Alsike	7,000	3,500	4,000	10,000	4,647	5,500
Timothy	500	200	250	1,000	1,154	867
Crested Wheat	100	.	130	475	750	901
Brome	5,000	4,000	2,250	5,000	7,758	5,764
Creeping Red Fescue	8,500	4,500	5,000	13,250	11,878	11,320

Alberta Seed and Crop Improvement Association

This Association, which is made up from representatives of the Grain and Seed Trade and officials of the Government Departments, is primarily concerned with the improvement of cereal and forage crops through the wider use of pedigree seeds. One meeting of the group is held annually.

Production of Registered Seed

Cereals and Flax

The following table summarizes the estimated yields of cereals and flax in bushels inspected for registration and certification:

	1956	1957	1958	1959	1960
		Estimated Yield (in thousands)			
Wheat	3,000	3,000	3,830	3,477	2,802
Oats	1,600	1,600	839	987	1,229
Barley	900	1,300	1,803	1,079	597
Flax	340	340	722	344	210

Quality of pedigree seed was excellent in 1960.

Forage Seed

The table below is a summary of reported acreage of grass and legume crops inspected for registration or certification:

	1956	1957	1958	1959	1960
Brome (Parkland)	10	20	......	10	10
(Lincoln)	......	......	......	215	235
(Manchar)	......	......	......	38	38
Creeping Red Fescue (Olds)	48	71	30	262	877
(Duraturf)	......			346	259
Crested Wheatgrass (Summit)	22	275	1,059	977	860
(Nordan)	......	......	135	178	638¼
(Fairway)	......	......	726	501	343
Timothy (Climax)	34	612	2,563	9,006	3,145
Alfalfa (Vernal)	9	48	138	297	262
(Rambler)	......	23	325	438	531
(Grimm)	65		22	......	35
(Ladak)	5	35	5	......	75
Red Clover (Altaswede)	27	17	.	57	21
(La Salle)	87	369	782	261	469
Sweet Clover (Erector)	5	......	......	......	......
(Cumino)	......	......	......	33½	......
Birdsfoot Trefoil (Empire)	......	3	......	......	......
(Viking)	......	......	3	......	......
Kentucky Bluegrass (Merion)	......	140	502	166	597
Orchard Grass (Chinook)	......	......	......	......	73

Distribution of Forage Seed

During the spring of 1960 the Field Crops Branch distributed 54,000 pounds of Registered No. 1 Rambler alfalfa seed which it had multiplied in the United States the previous year. The Branch continued its policy of seed multiplication of Rambler in the United

States and 80,000 pounds was produced in 1960. This seed will be available to Alberta farmers for hay and pasture production.

As in previous years the Field Crops Branch co-operated with the Canadian Forage Seeds Project in the distribution and multiplication of Foundation and Registered Approved forage seed. The following quantities were distributed:

Foundation:	
Alfalfa (Rambler)	30 lbs.
Red Clover (La Salle)	360 lbs.
Red Clover (Altaswede)	12 lbs.
Reed Canary Grass (Frontier)	10 lbs.
Timothy (Climax)	60 lbs.
Registered Approved:	
Alfalfa (Rambler)	705 lbs.
Creeping Red Fescue (Olds)	250 lbs.
Red Clover (La Salle)	400 lbs.
Crested Wheatgrass (Nordan)	2,050 lbs.
Timothy (Climax)	1,675 lbs.
Red Fescue (Penlawn)	50 lbs.
Sweet Clover (Cumino)	802 lbs.

The Alberta Varietal Zonation Committee

This Committee continued its function as in previous years. The annual meeting was held in December when the following changes were made in the cereal recommendations: Vantage barley was deleted from Zones 1 and 2A and replaced with Palliser. Betzes was added to Zone 2C and the irrigated areas. Olli was deleted from Zone 4C and included were Parkland and Wolfe. The only other change was the deletion of Exeter oats from the recommendations for Zone 4C.

Publication No. 91 "Varieties of Grain for Alberta" was revised.

Forage Crops Advisory Committee

This Committee held its annual meeting in December at which research, plant breeding, extension and promotion of forage crops was discussed.

Fodder and Feed Grain Assistance Policy

The Federal-Provincial Policy for the sharing of freight and partial truck costs on fodder, which went into effect in November, 1959, continued until March 31st.

Total assistance of $14,593.69 was paid on the movement of 3,872 tons of fodder for an average assistance of $3.77 per ton. These costs were shared equally by the Federal and Provincial Governments.

Early in 1960 it became evident that the east-central portion of the Province was in very short supply of feed grain. On January 11th a freight assistance policy on the movement of feed grain became effective. The Department provided assistance of .05 cents per ton mile one-way loaded travel on mileage in excess of 25 miles up to a maximum of $10.00 per ton. Assistance was limited to residents within the area bounded on the East by the Saskatchewan border, on the North and South by Townships 52 and 32 inclusive, and on the West by the Western boundary of Range 12. Total assistance of $10,418.73 was paid on the movement of 2,491 tons of feed grain for an average assistance of $4.18 per ton.

The Seed Dealers Act

Thirty licenses were issued to Seed Dealers operating in the province.

The Seed Control Areas Act

Two seed control areas were in operation within the Province namely the Hays Seed Control Area and the Wanham Seed Control Area.

Other Activities

Numerous inquiries re all phases of crop production were answered by correspondence or office visits. Several talks were given on radio and at Agricultural Short Courses.

A Pasture Improvement Program was initiated in the Edmonton Milk Shed and 48 farms were entered. This program was designed to focus attention on the need for more grassland cropping and better management practices.

Other activities included judging at Seed Fairs and 4-H Achievement Days, preparing articles for Agricultural Notes and assisting in the preparation and revision of pamphlets.

International Seed Shows

The Department continued its policy of assisting exhibitors at the Royal Agricultural Winter Fair, Toronto. The Field Crops Branch assembled and shipped exhibits to the Show paying the shipping costs both ways. In addition to supervising the exhibits at the Show all prize monies won by Albertans at the Royal were increased by 50%. A special honorarium of $25.00 was paid for each first prize in the classes for wheat; oats; barley; rye; flax; alfalfa; alsike; red clover; sweet clover; brome; fescue; timothy; crested wheatgrass; field beans; russet (netted gem) seed potatoes; potatoes in the Vegetable and Cooking classes and 4-H Club exhibits. Such honoraria was increased to $100.00 for championships won with exhibits of wheat; oats; barley; rye and forage seeds.

The names of the 1960 winners at the Toronto Royal Winter Fair were as follows:

World Championships:		
Forage crop seed (Brome)	I. J. Bullick	Coronation
Oats	Geo. A. Lamb	Cherhill
First Prizes:		
Timothy	E. Kuykendall	Grande Prairie
Brome Grass	I. J. Bullick	Coronation
Alsike Clover	Tom Corlett	Clairmont
Oats	Geo. A. Lamb	Cherhill
Barley (6-rowed variety)	Robert M. Stuart	Innisfail
Potatoes (Netted Gem)	T. Fujimoto & Sons	Rainier
Wheat (4-H member)	Joan Deurloo	Granum
Potato (early) (4-H)	John Olson	Abee
Potato (Netted Gem)	Tona Ohama	Rainier

CROP PROTECTION AND PEST CONTROL

Crop Pests

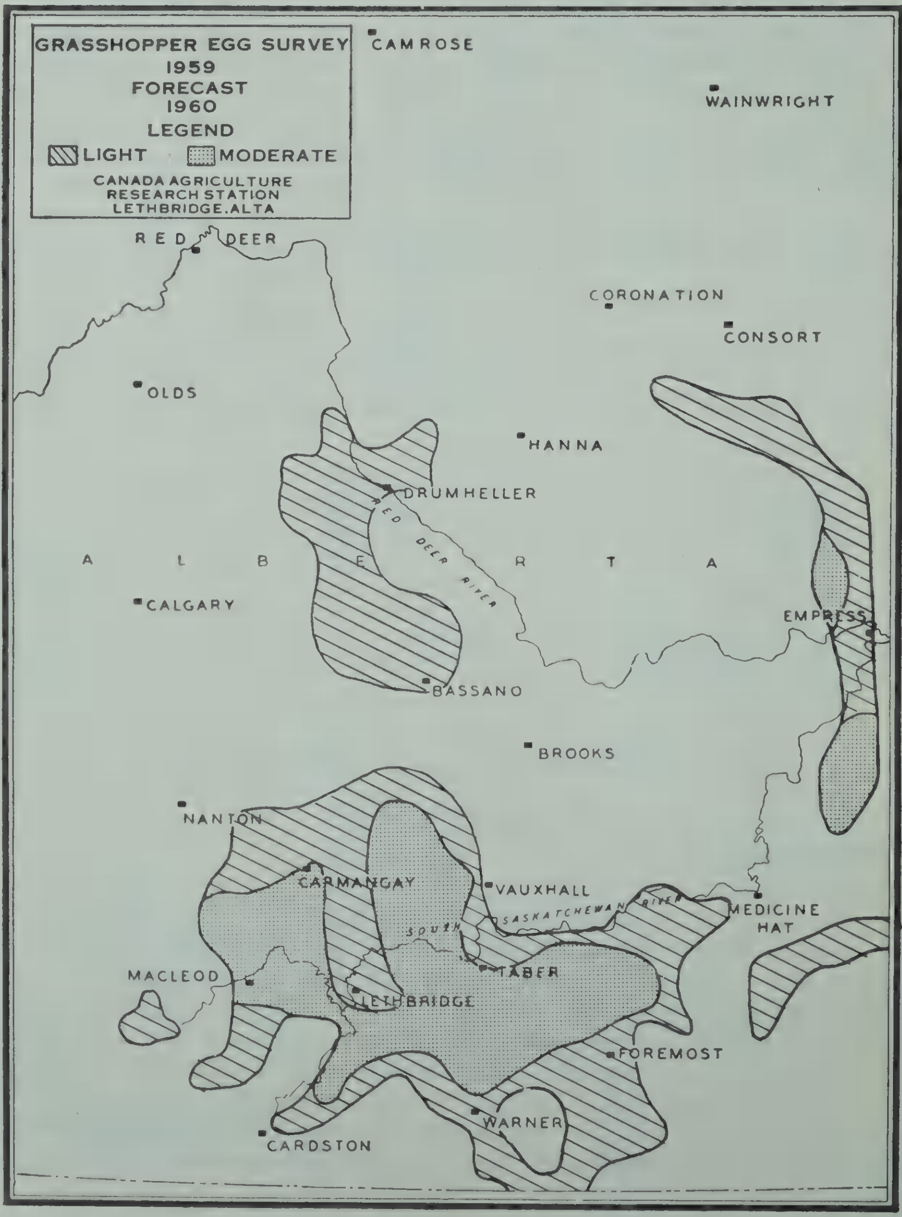
Grasshoppers

The infested area in southern Alberta increased from 4,150,000 acres in 1959 to 6,800,000 acres in 1960. Of the total infested area, 2,400,000 acres were rated moderate and 4,400,000 acres as light. The accompanying map shows the distribution of this area and the relative intensity of infestation. For the first time since 1952 a major outbreak was experienced north of the Bow River in the Bassano-Gleichen-Drumheller-Three Hills area. Of the three major pest species, the migratory hopper was most prevalent. The two roadside species, the clear-winged and the two-striped, were also present, with the former being the main species in the northwest. Adequate moisture and rapid growth during June generally minimized damage, except in eastern sections. Timely cultivation and spraying resulted in effective control and little crop damage. Grassland damage was the most severe in 10 years.

Under the grasshopper policy, the Department distributed Aldrin and Dieldrin insecticides at cost, less shipping and handling charges, through municipal and district offices. The following table shows the 1960 situation and control program with 1957-59 data for comparison purposes:

	1957	1958	1959	1960
Acres Land Infested	1,700,000	3,110,000	4,150,000	6,800,000
Acres Crop Menaced	3,000	150,000	500,000	900,000
Acres Crop Destroyed	100	200	500	4,000
Lbs. Tech. Aldrin Used	50	4,250	240	100
Lbs. Tech. Dieldrin Used	....	70	10,750	10,140
Acres Sprayed	400	35,500	173,800	163,000

The above figures are estimates, based on distribution from Department stock and not including insecticides from commercial outlets. The cost of Dieldrin spray material remained at about 15 cents per acre.



The 1960 grasshopper policy, forecast and map were printed and distributed to municipal and district offices and other interested agencies. Control information was distributed by Publication 145 "Grasshopper Control In Alberta" and Publication 139 "Chemical Control of Insect Pests—1960", both of which were revised. A special mimeograph "Grasshopper Control on Forage and Pasture" was prepared and distributed in July, to deal with pesticide residues in milk and animal products. The 1961 forecast, prepared by the Lethbridge Research Station, predicts an 80% increase in the infested area, mostly in the northward direction.

Wheat Stem Sawfly

The sawfly population and damage remained at the low level of 1959. Large acreages of unfavorable host crops such as durum, mustard, rapeseed, sunflower and flax helped to reduce damage in infested areas. Resistant wheat varieties, Rescue and Chinook, were grown on an estimated 7.2% of the total wheat acreage, mostly in sawfly areas. Forecast maps were not prepared by the Lethbridge Research Station and none were distributed, as in former years.

Cutworms

The Red Backed Cutworm outbreak of the last three years was greatly reduced in 1960. Spotty infestations were reported in fields and gardens of north-central Alberta. An estimated 3,000 acres of field crops were sprayed, compared to 50,600 acres treated in 1959. Pale Western Cutworm continued to increase in the prairie region and some fields were severely infested. The 1961 forecast, by the Lethbridge Research Station, indicating further increase and listing fallow control measures, was distributed to municipal and district offices. A few severe infestations of Army Cutworm damaged sugar beets, mustard and rape.

Wireworms

Population and damage remained low, except on farms where seed treatment was discontinued in heavier infested areas. Sugar beets and potatoes, especially on lighter soils in some districts, were damaged. Insecticides, used as a band or seed row treatment, often mixed with fertilizer, proved effective and economical on higher priced crops. During 1960, municipal seed cleaning plants treated 312,200 bushels for wireworm control as compared to 252,800 bushels in 1959.

Beet Webworm

The webworm population was lower than last year and considerably reduced from the 1958 outbreak numbers. Less than one-quarter of the sugar beet acreage was treated once. Widely scattered infestations appeared on rapeseed in southern areas.

Alfalfa Weevil

Infestation has spread through all irrigated areas to north of the Bow River in the central part of Alberta. Older infestations in the Milk River valley increased to the point where economic damage was evident for the first time. Timely rains prompted good recovery.

Sweet Clover Weevil

In the foothills and parkland regions, wherever sweet clover was grown extensively, weevil numbers and damage continued high. Dieldrin and Heptachlor sprays were effective but presented a chemical residue problem in milk and beef. The 1959 granular insecticide plots in the Lacombe district proved inconclusive. Further test work was initiated in the Red Deer and High River districts, in co-operation with the Lethbridge Research Station. This Division also conducted 8 field trials using Dieldrin and Heptachlor granular insecticides, broadcast with clover seed, in 8 north-central districts. Fall readings showed variable results. Test work will be continued since the information is badly needed.

Corn Leaf Aphid

This aphid attacked late seeded barley during early August in the largest numbers since the large scale outbreak of 1955. Most barley was headed out and maturing so damage was low except in the odd field of immature barley where losses up to 50% were found. A warning circular was sent to all municipal and district offices on July 15th. Malathion spray was used on some heavily infested fields.

Vegetable and Special Crop Insects

Colorado Potato Beetle infested most fields in the irrigation area and heavier infestations were sprayed. Sugar Beet Root Maggot damaged beets, especially on lighter soils, but was effectively controlled where Heptachlor-fertilizer band treatment was used. Red Turnip Beetle, Diamond-Backed Moth and the Cabbage Looper were more numerous on the increased rapeseed acreage and several thousand acres were sprayed. Flea Beetle were numerous and damaged rape seedlings throughout north-central Alberta to north of Manning. Root maggots of crucifers and onions infested most commercial and garden crops, causing heavy losses where insecticide soil treatment was not used. Publication 130 "Control of Garden Pests" was distributed for control of various garden pests.

Shelterbelt Insects

Spruce and larch sawfly occurred about 3 weeks late for the second year and damage was lighter than usual. Aphids and Spider Mite were numerous on shelterbelt trees, ornamentals and raspberries. Forest Tent Caterpillar continued in large scale outbreaks in the St. Paul-Bonnyville area and several districts of the Peace River region. The Department 50% grant for sprayers was continued. During 1960, 4 municipalities obtained sprayers under this policy—The Municipal Districts of Stony Plain No. 84, Lac Ste. Anne No. 93, Willow Creek No. 26 and the County of Warner No. 5. Seventeen municipalities now have spraying equipment for insect control. Some 140 farm shelterbelts were sprayed by Department and municipal sprayers. Publication 41 "Insect Attacking Conifers" was distributed for control of various shelterbelt insects.

Stored Grain Insects

Rusty Grain Beetle, Grain Mite and other pests increased, especially in warm weather storage of damp grain threshed after the early snow of 1959. Approved gas masks and canisters for fumigating grain safely were supplied to farmers and grain agents through district offices. The Edmonton and Lethbridge offices serviced a considerable number of farms with storage problems.

Other Insect Pests

Red Clover Mite occurred in outbreak numbers in urban areas, especially Edmonton and Calgary. Homes were invaded by a virtual flood of mites from May to the end of October. Several hundred calls and letters for information were received and handled by prepared circulars, publications and letters. Strawberry Root Weevil and Manitoba Maple Bug continued as frequent invaders of homes. Garden Slugs were numerous in city yards and gardens during the wet fall period. Some 190 insect specimens were identified and control information supplied. Publication 139 "Chemical Control of Insect Pests—1960" was prepared and distributed at all municipal and district offices, interested insecticide firms and other agencies.

Blackbirds

Personal field investigations and results of a questionnaire mailed to corn and sunflower growers and processors revealed heavy blackbird damage to these crops in the irrigated areas. Eleven thousand acres of sunflower received damage varying from 5 to 30%. Over 4,000 acres of corn were damaged from 0 to 20%. Those corn fields that escaped any damage usually were grown near a sunflower field, which crop is a preferred food. Information concerning the use of blackbird scaring devices was printed and made available to growers through Municipal and Department offices. Growers were encouraged to use scaring devices early in the growing season before bird damage begins. These devices proved nearly 100% effective, where used as directed. Elsewhere blackbird damage, throughout the province, remained spotty. Oat fields were hardest hit.

Crop Diseases

Diseases of Cereals

Crop diseases were generally less severe than usual. Smuts and Root Rots of wheat and barley remained at the low level of the last two years. Take-All Root Rot caused considerable damage in some fields in the parkland region where proper crop rotation was not practised. Stem and Leaf Rust occurred only in trace amounts. Governed and Loose Smut of oats were low except in a few fields were seed treatment was not used. Blast and Halo Blight of oats remained low. Leaf diseases of barley remained low. Scald and Net Blotch occurred in larger amounts in the heavier rainfall areas of the foothills and the Athabasca-Cold Lake region.

For the second consecutive spring, numerous cereal specimens and reports were received from the brown and shallow black soil areas. Seedlings showed a pinched effect due to cold injury, wind damage, etc. but recovery was good. Timely articles were released on seed treatment and disease control by crop rotation and other good management practices. Municipal seed cleaning plants treated 1,795,000 bushels of seed for seed-borne diseases compared to 1,662,800 bushels in 1959.

Diseases of Other Crops

Flax Rust remained low but Seedling Blight showed up in most fields in trace to severe amounts, indicating the need for proper seed treatment. Winter Crown Rot was less prevalent but affected some forage crops and lawns. Fireblight of apples, mountain ash and related ornamentals continued at a high level with a significant increase in damage to mountain ash. Needle Drop on pine and spruce continued high following cold injury of early spring.

Diseases of Potatoes

(a) General

The incidence of common diseases such as Blackleg, Rhizoctonia, Scab, leaf Roll and Wilts was generally low. Larger commercial growers especially made progress in the use of certified seed, better sanitation, and management. Early Blight appeared early in many areas, causing light to moderate damage. Fungicide spraying gave good control. Late Blight showed up in widely scattered areas but occurred too late for any damage.

This Division co-operated with the Plant Pathology Department, University of Alberta, in potato scab trials and in a provincial scab survey. Various fungicides, fertilizers and sulphur were tested in 6 districts for scab control, with some promising leads on which continued testing is planned. Over 400 samples of tubers and soil were collected throughout the province during regular inspection, to define scab areas and to correlate scab with soil type.

(b) Bacterial Ringrot

The control program was continued in established Pest Areas. Ringrot infected stocks were directed for disposal by mid-March. Most growers co-operated well and only 1 official notice was served to obtain timely disposal and clean-up of storages. Certified seed lists were supplied to all commercial growers. For the 5th year, growers with ringrot were required to plant only certified seed or seed grown on a separate approved seed plot. Most storages were cleared and disinfected before seed was moved in. Basic precautions proved effective i.e. the Edmonton area had only 1 repeater out of 25.

The field disease survey began on August 29th with 13 inspectors employed. Fair weather and no frost in most areas contributed toward a rapid but thorough survey. The Canada Department of Agriculture co-operated in seed field survey and diagnostic service. The following table shows the crop situation and survey results, with 1956-59 data for comparison purposes:

RESULTS OF THE RINGROT SURVEY BY PEST AREAS FOR 1956-1960

Pest Area	Year	No. Farms Inspected	No. Farms Diseased	Acreage Inspected	Acreage Diseased	% Diseased	
						Farms	Acreage
Lethbridge	1956	261	45	5,173	1,401	17.2	27.1
	1957	247	63	4,826	1,280	25.5	26.5
	1958	234	65	5,108	1,091	27.8	21.4
	1959	208	35	6,749	1,165	16.9	17.3
	1960	198	53	6,937	1,944	26.8	28.0
Calgary	1956	50	6	300	27	12	9
	1957	34	1	162	1	2.9	.6
	1958	35	4	253	36	11.4	14.2
	1959	41	9	353	100	22.0	28.3
	1960	39	2	291	11	5.1	3.8
Drumheller	1957	9	0	32	0	0	0
	1958	8	0	16	0	0	0
	1959	9	0	24	0	0	0
	1960	9	0	42	0	0	0
Brooks	1956	56	13	1,222	228	23.2	18.6
	1957	43	11	1,538	285	25.6	18.5
	1958	42	5	1,486	132	11.9	8.9
	1959	36	8	1,594	196	22.2	12.3
	1960	36	10	1,745	565	27.8	32.4
Edmonton	1956	200	38	2,602	608	19	23.3
	1957	152	26	2,225	343	17.1	15.4
	1958	153	26	2,370	363	17.0	15.3
	1959	148	25	2,956	507	16.9	17.1
	1960	126	16	3,123	264	12.7	8.4
Total	1956	567	102	9,297	2,264	17.9	24.3
	1957	485	101	8,783	1,909	20.9	21.7
	1958	475	100	9,233	1,622	21.1	17.6
	1959	442	77	11,676	1,968	17.4	16.8
	1960	408	81	12,138	2,784	19.8	22.9

A total of 12,138 acres on 408 farms was inspected. The disease situation in the Lethbridge and Brooks areas was worse than in 1959. Eighteen infested farms in over 100 acre range increased the per cent infected acreage in the irrigation area. The disease situation in the Calgary and Edmonton areas improved. The Drumheller area remained ringrot-free for the 4th consecutive year. In the over-all picture, there was an increase of 4 infested farms from 1959. In several cases small crops, grown without permit, showed over 50% infection. However, in practically all cases, only trace infection of ringrot was found—often only 1 or 2 plants in 100 acre fields. The total amount of ringrot disease remained at a very low level, with almost no yield or storage losses to producers or the trade.

High pressure sprayers operating out of Edmonton and Lethbridge disinfected 66 cellars plus machinery and equipment. All growers with ringrot infection were contacted by mail and personal visits to advise and assist with crop disposal and control measures. Various circulars, publications, disease charts and other information were distributed to all commercial growers. Three potato grower meetings at Taber and Edmonton, with a total attendance of 143, were attended. This division proposed that the Department's control program could be discontinued after more than 20 years operation. Resolutions from the meetings requested continuation of the control program with some changes. A subsequent questionnaire sent to all commercial growers indicated that the majority of growers supported continuation of the ringrot control regulations.

Livestock Pests

Cattle Grubs and Lice

Stockmen showed increased interest in new livestock systemic insecticides. Inquires were numerous and information on warble and louse control was supplied by data compiled from field tests of 1958-59. Cattle spraying demonstrations proved popular and another 5 were conducted in districts not covered by the 35 demonstrations of 1959. A number of districts organized local cattle spraying associations, i.e. the M.D. of Stony Plain No. 84 has 18 associations with spraying equipment to treat all cattle in the municipality. Most Agricultural Service Boards provided sprayers for demonstration or service spraying and conducted 165 demonstrations whereby 1,164 herds with 56,800 cattle were sprayed for warbles and lice.

The new systemic, Ruelene spray, proved effective for warble and louse control, in spring checks on cattle sprayed the previous fall. A further 14 field tests were conducted in the fall, particularly to obtain weight-gain data, in co-operation with the University of Alberta, Western Stock Growers, commercial firms and stockmen. This Division also co-operated with the Alberta Livestock Protective Society in warble control displays at the Edmonton and Calgary Spring Sales. Publication 98 "Warble Fly control" and Publication 73 "Louse Control in Cattle", plus other timely circulars and posters were distributed.

The Forestburg Warble Test Project completed its first year successfully despite unfavorable weather conditions. Data compiled by the Lethbridge Research Station showed 94 to 99% grub control. Excellent louse control also resulted from the one fall spraying with Co-Ral or Ruelene. During the year several trips and meetings were necessary to co-ordinate work of the various agencies on approximately 200 farms in the project area. The local District Agriculturist and Field Supervisor contacted most farms for cattle numbers, by questionnaire or personal visit. During the fall, the Hastings Coulee and Pleasington Cattle Spraying Associations sprayed about 6,500 cattle, to start the second year of the 3 year project. Two chemical firms again contributed most of the Co-Ral and Ruelene systemic insecticides used in the project. Considerable information was gained on organization of large scale control areas and co-operation at the federal, provincial, municipal and farmer levels.

Magpie Control

The magpie control program, based on local control measures designed to meet local needs, was continued in 1960. Information was given to livestock men wishing to curb magpie predaceous activities. Control demonstrations were set up in areas requesting such. During the last two winters, most district and municipal officials have been trained in control measures to enable them to assist with individual and local control programs. Fewer reports of actual magpie damage to livestock, were received in 1960 than in 1959. The Government grant for magpie bounty was discontinued.

Coyote Control

The following approved poisons were supplied free of charge to 87 approved districts which include all settled areas of the province; cyanide guns (getters), strychnine and sodium fluoroacetate (compound 1080).

Since 1951, when the Department undertook the control of coyotes in the settled areas, a total of 41,540 coyote getters, 113,440 cyanide cartridges and 887,500 strychnine pellets have been distributed by provincial and municipal pest control officers. Cyanide guns in some areas are being used to only a limited degree. The Department has undertaken to recall all unused getters, in the interests of public safety and, to date, over 4,000 getters have been returned. During the year a survey was conducted among Pest Control Officers and District Agriculturists, in order to evaluate application of the coyote control policy in each district. Seventy-one districts were surveyed and 93 personal interviews held. The following table shows the amounts of major coyote control materials supplied since 1951, as well as estimated coyote kills by the three poisons.

	Coyote Getters	Cyanide Cartridges	Scent (2 oz. jars)	Strychnine (Pellets)	Coyotes Killed
1951	5,560	11,510	1,050	....	8,400
1952	4,530	12,460	1,350		12,300
1953	18,800	46,030	8,120	116,000	56,300
1954	5,410	20,110	7,370	192,000	62,100
1955	4,080	10,990	6,340	195,500	57,200
1956	1,580	5,000	3,330	124,500	50,500
1957	830	4,140	2,310	76,000	41,000
1958	400	1,230	1,340	58,500	34,900
1959	240	820	1,330	66,000	32,700
1960	110	1,170	1,150	59,000	28,300
Totals	41,540	113,440	33,690	887,500	383,700

Coyote control was continued in areas outskirting settlement. Six provincial Pest Control Officers were fully employed during the winter in Improvement Districts. During the summer period 13 provincial officers worked on coyote control along with other duties.

The poison 1080 was restricted to sparsely settled regions and to open areas in more heavily populated districts, where poisoning could be carried out effectively but with maximum safety to the public. As requested by Municipalities and approved by the Minister, the following 1080 baits were prepared and set during the winter season:

District	No. Baits Set
M.D. of Bonnyville No. 87	6
M.D. of Cardston No. 6	32
M.D. of Eagle No. 81	17
M.D. of Flagstaff No. 62	7
M.D. of Foothills No. 31	16
M.D. of Kneehill No. 48	8
M.D. of Lac Ste. Anne No. 93	25
M.D. of Lacombe No. 64	12
M.D. of Leduc No. 75	2
M.D. of Lethbridge No. 25	5
M.D. of Minburn No. 72	4
M.D. of Mountain View No. 49	18
M.D. of Paintearth No. 53	11
M.D. of Pincher Creek No. 9	14
M.D. of Provost No. 52	5
M.D. of Red Deer No. 55	12
M.D. of Smoky Lake No. 89	5
M.D. of Spirit River No. 133 & I.D. No. 134	7
M.D. of Starland No. 47	12
M.D. of Stony Plain No. 84	8
M.D. of St. Paul No. 86	17
M.D. of Taber No. 14	15
M.D. of Vermilion River No. 71	19

District	No. Baits Set
M.D. ofWainwright No. 61	12
M.D. of Willow Creek No. 26	8
County of Athabasca No. 12	15
County of Beaver No. 9	7
County of Forty Mile No. 8	19
County of Grande Prairie No. 1	3
County of Newell No. 4	18
County of Ponoka No. 3	9
County of Stettler No. 6	13
County of Warner No. 5	3
County of Wetaskiwin No. 10	10
Special Areas No.s 2 & 3	11
I.D. No. 11	26
I.D. No. 22	19
I.D. No.'s 27, 946 & 50	16
I.D. No.'s 58, 65 & 68	20
I.D. No.'s 77, 78 & 95	16
I.D. No.'s 85 & 101	5
I.D. No. 102	1
I.D. No.'s 107 & 122	18
I.D. No. 125	3
Total Baits Set	529

At total of 73 districts, including Counties, Municipal Districts, Special Areas, Improvement Districts, Indian Reserves, etc. are now approved as areas where 1080 may be set. The following table of the 1080 program shows a comparison of sets, districts using and approved areas, dating back to 1951 when 1080 was first tested in the province.

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
No. of Sets	50	143	184	387	387	753	778	749	632	529
No. of District Using	2	11	13	19	28	40	47	50	55	54
No. Districts Approved	2	12	15	19	30	43	57	68	72	73

The Supervisor, his Assistant and three Fieldmen working out of Edmonton and Lethbridge, serviced 54 districts using 529 baits in 1960.

Rodent Control

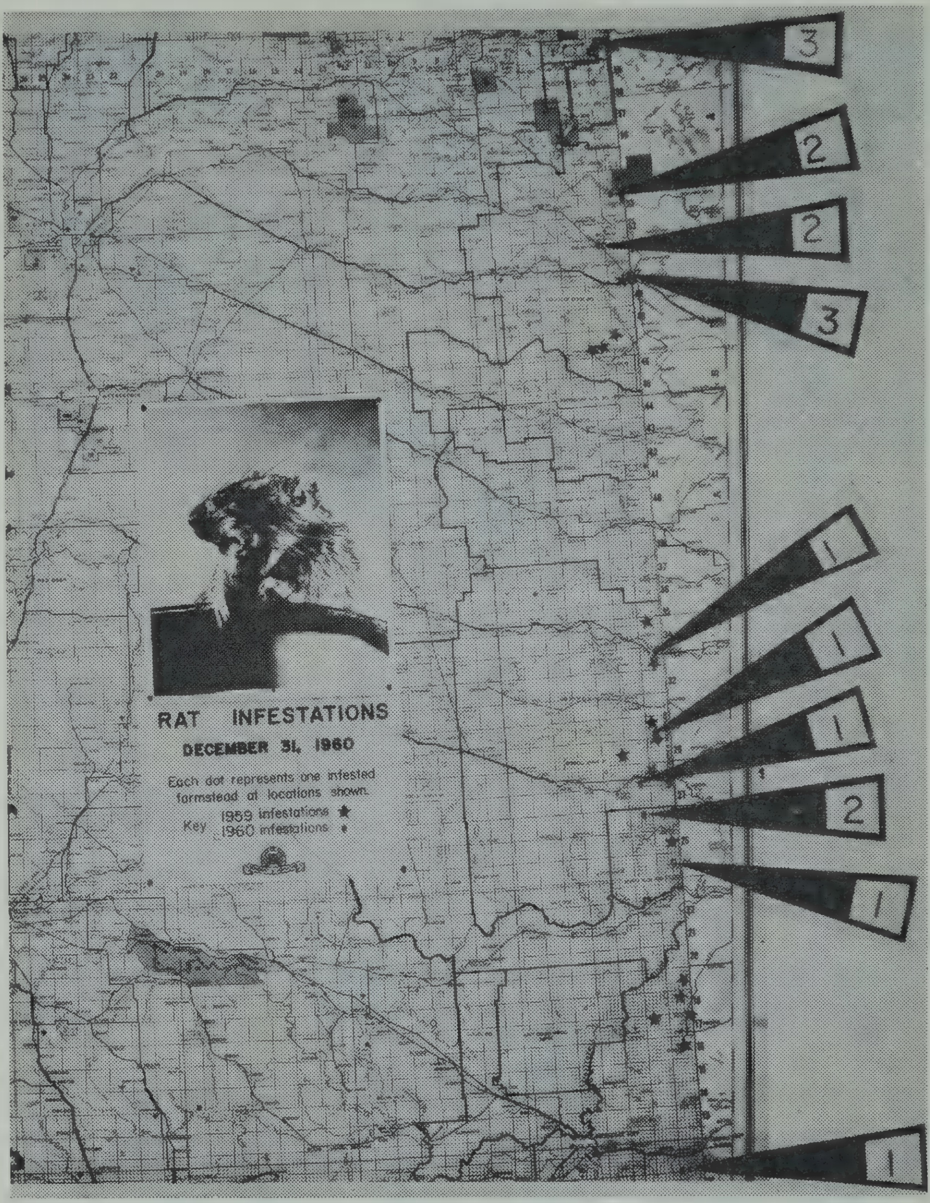
Pocket Gopher

Damage, to crops, gardens and shelterbelts continued to increase. To offset this damage and to encourage a wider application of standard and new control procedures, 28 field demonstrations attended by 782 persons in 23 districts were arranged. Also, Publication 124 "Pocket Gophers", based on proven control methods, was distributed.

Norway Rats

The following table indicates the rat situation as at December 31, 1960, with 1958-59 results for comparison purposes:

	Year	Verm. R. M.D. 71	W'right M.D. 61	Provost M.D. 52	Sp. Areas No. 2 & No. 3	Acadia M.D. 34	I.D. No. 11	I.D.'s 85 & 101	Totals
Premises Checked	1958	1,441	391	550	563	174	390	265	3,774
	1959	1,411	363	604	567	177	417	462	4,000
	1960	1,317	366	568	564	176	431	330	3,752
No. Infestations Exterminated	1958	159	30	76	97	37	148	80	585
	1959	88	10	27	56	34	89	73	377
	1960	60	11	8	40	12	12	11	154
No. Infestations Remaining Dec. 31, 1960	1958	16	0	3	11	5	11	10	52
	1959	4	0	0	6	1	6	0	17
	1960	7	0	0	3	3	1	3	17



A total of 171 premises were infested during the year as compared to 394 in 1959. All but 17 were exterminated. Those remaining infestations consisted of very few rats. In the few cases where control measures were not taken by residents, 6 Notices to Control Pests were issued. No court action was necessary. Rats were confined to a 10-15 mile strip along the eastern border.

Emphasis were increased on preventive measures. Several garbage disposal grounds were improved, many granaries lifted clear of the ground and, hundreds of feed stacks were baited. Warfarin and Pival poison baits were widely distributed, free of charge, to residents of the rat area e.g.: Ready Mixed Bait—19,800 pounds, Water Soluble Bait—4,900 packages. Estimations based on average rat infestations and amounts of poison consumed by migrant rats indicate that over 30,000 rats were killed during 1960.

Rural municipalities, cities, towns and villages were circularized for names of appointed pest control officers. Approximately 250 were named. These men handle local rat reports and render a valuable service to the provincial campaign. Two full time provincial Pest Control Officers supervised the border area, working closely with municipal pest control officers and residents. The 50 per cent Department grant toward the salaries and expenses of municipal pest control officers was continued.

The annual meeting of provincial and municipal officials was held at Oyen to review the rat situation and special related problems. Three educational rat displays and demonstrations were conducted during summer fairs and two rats were placed in the Calgary and Edmonton zoos. Four rat films, numerous colored slides, live and mounted specimens and control materials were displayed at various meetings. Newly appointed pest control officers were supplied with rat control kits, posters and printed publications for public distribution. Nineteen suspected rat reports were investigated at points other than along the border.

Rodent Repellents

Damage to fruit trees, ornamentals, and shelterbelts by mice and rabbits (hares) increased in 1960. Information outlining practical and effective control measures was printed and distributed to Field Supervisors and District Agriculturists for use by farmers. Three specially prepared repellents were supplied to the University for testing of effectiveness. Others were set out as farm demonstrations.

Pest Control Advisory Committee

The fourth annual meeting of this committee was held in December, with representation from the Canada Department of Agriculture, the University, the Fish and Wildlife Branch and the Field Crops Branch. The Predator and Wildlife Sub-committee also met in December. Various problems of mutual concern were dealt with by both committees. The Supervisor and his Assistant served as secretaries for the Committee and Sub-committee respectively.

Miscellaneous

The Supervisor and his Assistant spoke at 58 meetings, short courses and field days. Nine Agricultural Service Board and M.D. Council meetings were attended on various pest control programs. Fourteen articles were prepared for Farm Notes and 5 radio interviews made. Nineteen conferences and committee meetings were attended. The Agricultural Pests Act 1960 and Alberta Regulations regarding coyote and magpie control were revised, approved and distributed. A survey was initiated on crop and livestock pest losses in co-operation with other agencies. A total of 320 specimens of insects, plant diseases and animals were identified. There were 315 field investigations made on various problems.

SOILS AND WEED CONTROL

Weeds and Weed Control

General

The snowed under crop of 1959 prevented fall cultivation of stubble to control weeds by fall tillage. The spring came early and good weather allowed farmers to pick up their crop without delay. As the season progressed the weather turned damp and cold delaying the germination of many annual weeds. Wild oats however germinated well, and advanced ahead of the early seeded crops.

As a result some crops were plowed under. Due to continued cool weather good control was not obtained by delayed seeding. In southern Alberta the weather was more favorable for spring weed control.

Canada and Sow Thistle and Hawksbeard were predominant weeds in many areas. Toad Flax however made the most spectacular increase in years with the weather being nearly ideal for germination and growth of this noxious perennial.

A late and open fall allowed for much field work, fall cultivations were continued until the first week of November resulting in good weed kills.

Weed Surveys

(a) A specific survey was made on the incidence of Couch Grass in the province by obtaining data from 31 municipalities. Of the eleven million acres under cultivation in this area, 560 thousand acres were reported as heavily infested and on 1 million acres the weed was present to a moderate degree.

(b) Survey reports obtained from 49 Agricultural Service Boards (this includes all municipalities except Fairview No. 136 and Forty Mile No. 8) indicate the following status of infestation of the five bad weeds:

Weed	Farms	Acres	Main Areas Heavily Infested
Hoary Cress	1,109	7,165	Lethbridge, Cardston, Calgary, Strathmore.
Russian Knapweed	268	297	Lethbridge, Taber, Pincher Creek, Claresholm.
Field Bindweed	1,429	2,928	Cardston, Lethbridge, Taber, Warner.
Toad Flax	6,763	32,257	Throughout the Province.
Leafy Spurge	248	4,330	Cardston, Pincher Creek, Provost, Camrose.

(c) Reports by Field Supervisors and Weed Inspectors indicated that Wild Oats, Wild and Tartary Buckwheat and Hemp Nettle were serious annual weeds in Alberta this year.

Weed Identification Service

Special plant packaging kits and instructions for handling and forwarding weed specimens for identification were supplied to District Agriculturists, Field Supervisors and Weed Inspectors. There were 238 weed specimens submitted which were identified (assisted by the Plant Science Division, University of Alberta) and control measures given. The following table shows a steady increase in the number of plants received for identification in the last four years:

Year	1957	1958	1959	1960
No. plants identified	72	168	182	238

Field Supervisors and District Agriculturists set up 108 weed displays at Fairs, Short Courses and meetings to acquaint the farmers with various local weeds and measures for their control.

Weed Inspection and Enforcement

This Branch employed 13 Weed Inspectors to enforce the Noxious Weeds Act in Improvement Districts. Four Provincial Supervisors assisted municipal Field Supervisors and Weed Inspectors with weed control programs. They were located at Berwyn, Edmonton, Calgary and Vermilion. Fifty-one Field Supervisors and 86 Inspectors were employed by municipalities. A total of 2,361 "Notices to Destory Noxious Weeds" were issued on 57,598 acres of land. There were also 27,086 acres prohibited to seeding as compared to 33,322 acres in 1959. Nine court cases were held under the Noxious Weeds Act.

Chemical Weed Control

(a) Soil Sterilants

The policy of supplying soil sterilants to municipalities at cost was continued. In 43 municipalities this cost was shared equally with the Department, Municipality and the farmer for the control of the five persistent perennial weeds. For the control of these perennials on roads in 45 municipalities the cost of sterilants was shared equally with the Municipality.

There was a total of 450,040 lbs. of sterilants used. The kind and amount are shown below with 1955-1959 totals for comparison purposes:

	1955	1956	1957	1958	1959	1960
Sodium Chlorate	347,784	379,718	190,449	222,656	229,040	243,040
Polybor Chlorate	21,450	34,550	20,090	35,265	90,150	111,300
DB Granular	....	7,050	18,700	57,450	75,340	85,300
Conc. Borascu	....	....	....	24,650	35,700	8,400
Monuron	....	....	....	....	....	2,000

These figures do not include sterilants which were purchased direct by farmers from the trade.

(b) Selective Herbicides

There were 7,123,000 acres of field crops treated with selective herbicides. This is about a 15% increase over last year and an all time high. In addition 14,000 miles of roads were sprayed for weeds and 3,193 miles for brush control. Over 1,000 miles of irrigation ditch banks were treated. The following table shows the total acreage treated during the past six years:

Year	1955	1956	1957	1958	1959	1960
Acres Treated	4,750,000	4,360,000	4,067,000	5,307,000	6,216,000	7,123,000

There were 27 Municipalities which handled 2,4-D, MCPA, and other selective herbicides for sale to farmers at cost.

Weed Control Trials and Demonstrations

Over 160 new weed control demonstrations were established. Of these the largest number were trials using Avadex and Carbyne for the control of wild oats in crops. 36 Municipalities participated in this co-operative venture. Plant material from these trials was harvested and threshed and the results were compiled and returned to the District Agriculturists and Field Supervisors for their use. Other trials included (a) the use of propionics for chickweed control in lawns and gardens, (b) low volatile 2,4-D ester preparations for brush control, (c) special herbicide preparations for Tartary Buckwheat and (d) ATA, Dalapon and Monuron for Couch Grass.

In co-operation with the Lacombe Experimental Farm and the Service Board of the Wetaskiwin County, this division was instrumental in setting up a large scale soil sterilant project in the Millet area for the control of Toad Flax. One acre of infested land has been presently utilized for trials with the option of taking up 3 more acres if necessary. It is planned to retain and expand this project for a number of years. The Experimental Station is expected to take over this project in the spring of 1961.

In co-operation with the M.D. of Cardston, the Blood Indian Reserve and this Branch, a large chemical weed control demonstration was staged in the Cardston area. Three aircraft and six ground spraying units were used in demonstrating the application of various herbicides on weed infested grain crops and pastures.

Weed Control With Forage Crops (Project 2)

Project 2 under the provincial weed control program was designed to demonstrate and implement weed control methods with grasses and legumes. The Department shares equally with the farmer the cost of forage seed for the affected area not to exceed 20 acres with extension to 30 acres in special cases. Local agricultural authorities must approve each application and the number is limited to 15 in each district.

The following table indicates the extent of participation by the Districts and the quantity of forage used last year, and comparisons for the years 1956-1959 inclusive:

	1956	1957	1958	1959	1960
No. D.A. Districts participating	....	....	14	19	23
No. of applications	....		30	146	200
Amt. seed supplied (16)	4,491	4,535	15,718	35,595	53,447
Acreage covered	....	....	1,309	2,909	4,454

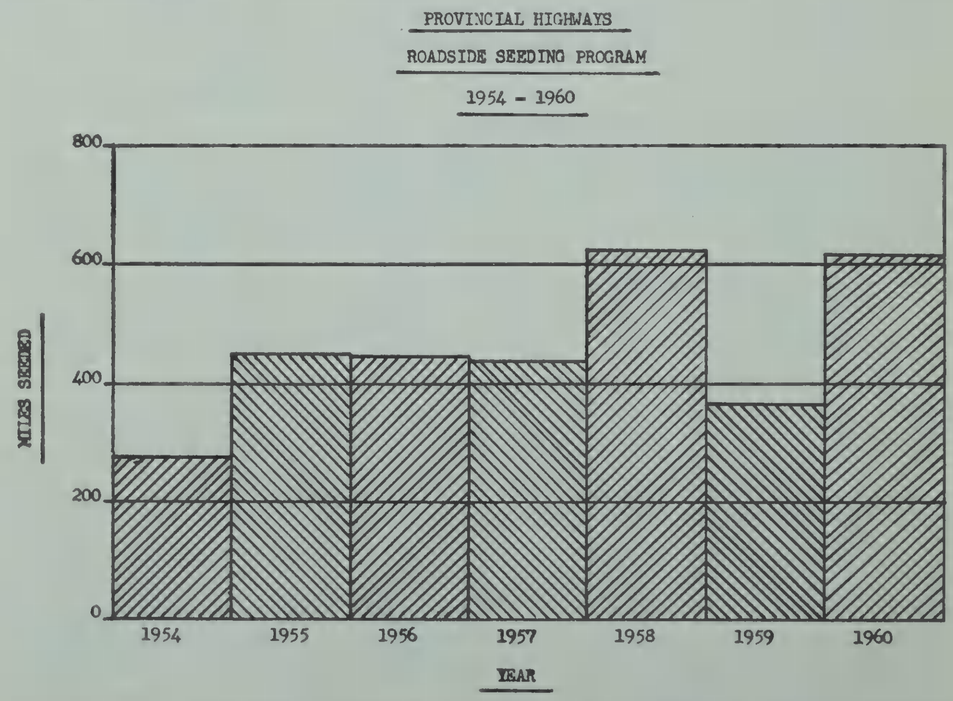
Crown Lands

Soil sterilants, grass seed and 2,4-D were made available on a limited scale for use on reported weed infested Crown lands. A total of 600 lbs. soil sterilants and a supply of 2,4-D was distributed to I.D. Weed Inspectors under this policy.

Roadside Seeding and Spraying

(a) Alberta Highways

The policy of seeding Government Highways was continued in 1960. There were 43,095 lbs. of seed used on 620 miles of road. The following chart shows the miles of highways seeded during the years 1954-1960 inclusive:



Difficulties were again experienced in seeding wide roadsides due to inadequate equipment for this type of work.

(b) Municipal Roads

As in the past years, suitable forage mixtures for seeding demonstration areas on newly constructed back-sloped roads were supplied to municipalities with Service Boards. Sufficient seed to plant 4 miles of road per division was the maximum allowable. The following table indicates the amount of seed supplied by the Branch and the total number of miles seeded. This table also shows the extent of mowing and spraying done by the Municipalities. Years 1955-1959 inclusive are show for comparison purposes:

	Pounds of Seed Supplied	No. of Miles Seeded	No. of Miles Mowed	No. of Miles Sprayed
1955	30,408	1,041	7,500	6,500
1956	28,500	1,818	12,018	12,486
1957	32,785	1,624	11,817	14,890
1958	37,850	2,216	20,083	17,220
1959	51,800	1,883	23,011	17,837
1960	52,553	2,708	25,074	17,873

Alberta Advisory Weed Committee

The Committee held its annual meeting in early December. Major items under discussion were weeds and methods of conducting weed surveys, the revising of a number of weed control publications, provincial weed tours, and the setting up of demonstration weed control trials. This Committee approved for Alberta the weed control recommendations of the National Weed Committee (Western Section).

Agricultural Service Boards

Two more Agricultural Service Boards were formed in 1960, making a total of 51 in the province. One was in the County of Forty Mile No. 8 and the other a joint Board in the M.D. of Fairview and I.D. No. 139. Provincial weed work activities are very closely associated with Service Boards. The Field Supervisors are appointed as municipal weed inspectors and carry out their duties as directed by the Board.

Under the Agricultural Service Board Act, weed infested or otherwise debilitated land can be placed under supervision or reclamation. This year the Boards placed 40 parcels of land under supervision, 183 parcels were carried under supervision from previous years and 59 were released. There were no new parcels under reclamation orders, 37 were carried from the previous year, and 9 were released.

Agricultural Service Boards continued to hold tours and field days to acquaint Board members, councillors and ratepayers with the various weed, soil and other agricultural problems in their area. There were 188 Field Days and 40 tours where weed control was featured. The weed control division of the Branch participated in 48 such activities. Members of this division spoke at 15 Short Courses and other meetings on weed control and related subjects.

Service Board Agreements

Maximum grant paid to municipalities by authority of the Agricultural Service Board Act amounted to $3,800.00 per district. In addition an average of $350.00 worth of grass seed was supplied to each area. There were also additional grants for Brucellosis control programs and for the construction of seed cleaning plants. Two new items were added under Special Agreements with Boards which permitted the Department to:

(1) Share equally with the municipality and the farmer costs incurred in preventing or controlling water erosion by:
  (a) filling and stabilizing gullies
  (b) the improvement of water courses

(c) terracing or contour planting
Maximum payment by the Department $300.00

(2) Pay one cent per tree planted over 20,000 per year provided the planting area and the planting operations are approved and supervised by the Department.
Maximum payment by the Department $200.00

Soil Conservation

General

Wind and water erosion in 1960 was definitely not as severe as in 1959. Lesser amounts of snowfall last winter with a gradual thaw resulted in very little damage due to water erosion.

Twenty-eight out of 50 municipalities reported some wind damage on an estimated 744 parcels of land, and 937 parcels in 32 municipalities were reported as damaged by water erosion. Only damage of significant concern to the farmers was recorded. This was a distinct decrease compared with the previous year.

District Agriculturists and Field Supervisors in co-operation with the Branch held 70 soil conservation demonstrations which included seeding down of eroded land and gully filling.

Soil Conservation and Reclamation Project

The Soil Conservation and Reclamation demonstration policy was greatly expanded, although it was carried out in the same manner as in 1959. The project was designed to encourage the use of forage crops and fertilizers in reclaiming and increasing the productivity of the soil damaged by wind, water, alkali or any other causes. The following table shows the extent of its use during the last three years.

	1958	1956	1960
No of Demonstrations	41	186	265
No. of D.A. Areas participating	17	23	28
Total amount of Forage Seed (lbs.)	8,956	37,238	54,654
Total amount of Fertilizer	0	2,000	5,880

The project was also designed so Agricultural Service Boards could benefit by its use on land placed under Supervision or Reclamation.

Save the Soil Campaign

The "Save the Soil" competitions were again carried out in three Municipal Districts within the Edmonton area namely, Sturgeon River, Strathcona and Stony Plain with a total of some 40 farmers participating. Eight winners received certificates of achievement from the Minister of Agriculture at the Agricultural Short Course held at Edmonton. A number of municipalities and Improvement Districts in the Peace River area also conducted a similar "Campaign" with trophies and certificates awarded to three winners at a special meeting held for this purpose.

Soil Fertility

This division established extensive fertilizer trials to demonstrate to farmers the proper use of fertilizers. Through the Agricultural Service Boards over 40 demonstrations were established in 25 municipalities. About 6,000 pounds of fertilizer, supplied by the trade, was used. The Branch threshed 330 grain samples and from 74 plots, tabulated the results and such information was returned to the District Agriculturist and the co-operating farmers.

Observation and results were reported to the annual meeting of the Alberta Advisory Fertilizer Committee.

The use of fertilizer increased by 22.6% over last year. Figures for the amounts used during the past four years are as follows:

Year	1957	1958	1959	1960
Amount used (tons)	38,337	47,952	65,185	79,878

Miscellaneous

(1) A large soil conservation display was prepared for the Calgary Seed Show. The same display was also shown at Fairs in Camrose and Mayerthorpe.

(2) The annual provincial Agricultural Service Board Conference was held at Edmonton in March with the Field Supervisor from each Service Board in attendance. The main items on the agenda dealt with administration and information relating to weed control. Regional Service Board meetings were held, with all members of the Boards attending, at Athabasca, Two Hills, Stettler, Wetaskiwin, Calgary, Lethbridge and Spirit River.

(3) Special weed meetings dealing with extension and regulatory matters were held at Edmonton, St. Paul and Grande Prairie at the beginning of the weed inspection season.

(4) The Supervisor and Assistant Supervisor of Soils and Weed Control attended 70 Agricultural Service Board meetings, made 75 field trips, went on 10 field tours and spoke at 10 Agricultural Short Courses and other Special meetings.

(5) Eighteen radio talks and 28 press releases were written for the Radio and Information Branch on timely soils and weed subjects.

(6) Active part was taken at the Western Canadian Weed Control Conference at Calgary and the North-Central Weed Control Conference held at Milwaukee where two papers were presented.

(7) A special 4-day weed tour was held in the province in July. The area covered included Onoway, Stony Plain, Edmonton, Leduc, Camrose, Red Deer, Calgary and Lethbridge. Provincial weed representatives from Saskatchewan and Manitoba were present, as well as technical personnel from commercial organizations.

(8) The publication "Chemical Weed Control" was completely revised and printed with over 12,000 copies distributed. A new publication "Chemicals for Wild Oat Control" was also prepared, printed and 5,000 copies distributed.

(9) Special releases on timely topics concerning weeds and soils were circulated to all field personnel.

HORTICULTURE

Horticulture Services

In 1960 Alberta farmers planted 1,881,145 trees. The total was made up of 1,654,805 from Provincial Nurseries and 226,340 from Federal Stations. This is an increase over 1959 of 145,945. The number of farmers receiving trees from Provincial Nurseries was 2,752. This is an increase of 629 over 1959.

Because many Alberta municipalities now have their own mechanical tree planters the two Government machines were not used for demonstration purposes. 931,095 trees were planted for Farmstead Shelterbelts, 402,621 were used for Field Windbreaks and 217,890 planted along roadsides for beautification and road protection.

1960 was a good year over most of the Province for trees. Some areas reported a dry spring resulting in losses, particularly in the case of hardwood cuttings. Most of the plantings made good growth during the growing season and went into the winter in excellent condition.

Tree Nursery—Oliver

1,499,450 trees and 110,000 hardwood cuttings of Poplar and Willow were supplied to 2,752 farmers from the Oliver Nursery. This is an increase of 200,120 trees over 1959 and 629 in the number of applicants receiving trees from this Nursery.

An inventory of trees on the Nursery at the end of the year included 5,349,727 evergreens and 3,520,610 deciduous trees. In addition, to these 8,873,337 trees the Nursery staff made 535,575 hardwood cuttings of Willow and Poplar.

Seed of the following varieties was collected, extracted and cleaned: Mountain Ash, Tartarian Honeysuckle, Manitoba Maple, Green Ash, Villosa Lilac and Colorado Spruce. The enlarged program initiated a year ago by the Department of Lands and Forests of gathering evergreen cones was continued in 1960. The Nursery received 5,151 bushels of cones of several species of Spruce, Pine and Douglas Fir. This has resulted in 3,099 lbs. of clean seed having a value of more than $25,000.00. This work will be continued through the winter of 1961.

No new buildings or equipment were added to the Nursery. A mudding machine was designed and constructed by the Nursery staff in the spring and this ensured a good supply of mud for protecting the seedling roots at shipping time. This machine released two men for other work. Six trolleys were made to speed up filling and emptying the cone kilns and at the same time double the capacity of the two kilns. 128 seed beds were lifted, repaired and moved to a site in field 9 for seeding. One foot bridge was constructed across the creek to make easier access to this field. The creek bed was cleaned of dead trees to increase the flow of water during run off and thus preventing flooding of parts of the Nursery.

Fifty 10-12 foot American Elm were lifted and moved from the Stony Plain area to the Nursery successfully.

Germination tests were made on Spruce and Pine seed for the Department of Lands and Forests.

Three different fertilizer formulations were used on evergreen seedlings, transplants and older trees in order to determine what effect if any these fertilizers have on tree growth. This trial will be continued in 1961.

48,000 Spruce and American Elm were supplied to the Forest Nursery Station, Indian Head, Saskatchewan. The Attorney-General's Department received 4,900 trees for planting at the Provincial Gaol, Calgary, and 750 trees for the Belmont Rehabilitation Centre, Edmonton. 8,000, 2-0 Spruce were supplied to the Parks Department, City of Edmonton, to be distributed to Grade one pupils in the Edmonton and Separate schools. 10,500 trees were supplied to the Parks Department, City of Calgary, a majority of these being distributed to Grade 3 pupils in the Calgary Public and Separate schools. 7,000 trees were supplied to the Department of Lands and Forests for experimental purposes. 7,200 trees were supplied to the Boy Scouts Association for planting at their Skeleton Lake summer camp. 8,775 trees were lined out at the Nursery for Provincial Parks.

There was no serious outbreak of insects at the Nursery although the complete Nursery was sprayed to ensure freedom from the pests.

Chemicals were used to spray the Nursery to control weeds thus reducing hand weeding to a minimum.

A small trial to determine the best time to plant hardwood cuttings on the Nursery in order to get the best size for shipping was repeated again. 1,800 hardwood cuttings of Russian Poplar were used. 200 were planted at weekly intervals from May 15 to July 25 and growth performance recorded. The ones planted June 13 gave the best size for shipping. This trial will be repeated in 1961.

One new windbreak ¼ mile long was planted and seven temporary ones were removed. All the windbreaks were pruned in the fall and sprayed for red spider during the summer.

The Nursery employs a staff of 4 permanent men. In the summer extra staff is hired. 40 were employed during the shipping season. In the summer seven extra men are hired plus 5 patients from the Oliver Hospital.

Tuber Indexing of Foundation Seed

The service of indexing foundation potatoes was continued by the Field Crops Branch, Brooks Horticultural Station, the University of Alberta and the Canada Department of Agriculture. 2,706 tubers, an increase of 76%, from the previous year, were grown in the greenhouses at the Brooks Horticultural Station and disease readings taken March 14 to 15. 95.57% of the tubers were returned to the growers as qualified for production of foundation seed. 1.9% showed slight mosaic and 2.53% showed unsatisfactory growth.

Seed Potato Production

The following table is a 9-year summary relative to seed producation in Alberta.

	1952	1953	1954	1955	1956	1957	1958	1959	1960
No. of Growers	81	86	70	67	72	65	61	68	62
No. of Fields Inspected	177	200	223	228	220	222	203	266	253
Acres Inspected for Cert.	702	942	1,022	1,004	1,328	1,577	1,615	2,070	1,847
No. of Fields Rec. Cert.	103	168	198	214	186	188	172	236	223
Acres passed for Cert.	578	844	905	965	1,129	1,272	1,300	1,716	1,547

Potato Production Improvement Committee

This Committee, appointed by the Horticultural Advisory Committee, is composed of potato growers from all commercial producing areas of the Province and Government personnel interested in potato production. It has the responsibility of assisting and advising the potato industry in the Province and acting in an advisory capacity to the Horticultural Advisory Committee. Two meetings were held in 1960, the annual meeting in Calgary in early

March and a second in conjunction with a field day held at Brooks in August.

Nursery Inspection

In co-operation with personnel of the Canada Department of Agriculture the Supervisor of Horticulture inspected 17 Commercial Nurseries. The inspection is carried out each year to check the nurseries for diseases and insects. Particular attention is paid to imported stock. As a result of this inspection, the Department in co-operation with the other Prairie Provinces, publishes a list of Prairie Nurseries.

Alberta Horticultural Association

The Association held its 8th annual meeting at Olds on April 8th. The 6th Provincial Show was held in Edmonton on August 16 and 17 in conjunction with the Annual Bench Show of the Edmonton Horticultural Society. The executive met at Olds and Edmonton.

Other Activities

The Supervisor of Horticulture addressed 21 public meetings. In addition, he spent time in 24 District Agriculturists areas assisting with tree planting, farmstead planning and many other horticultural matters. He acted as judge at 9 Horticultural Bench Shows as well as judging potatoes at the Calgary Seed Fair and rural and urban gardens in the Carstairs district. He assisted at 10 4-H Gardening, Grain and Potato Achievement Days. He attended 8 regular monthly meetings and 3 Executive meetings of the Edmonton and District Planning Commission and attended 3 meetings of the Small Holding Committee of the Planning Commission. He is a member of the Alberta Horticultural Association and attended two executive meetings and the annual meeting of this organization. Twenty-one visits were made to the University to discuss matters of mutual interest. Four radio talks were given, two on the Department's program "Call of the Land" and two on the C.B.C. He also made one T.V. appearance produced by the Film and Photographic Branch and shown on all Alberta's T.V. stations. Twenty-three press releases on timely subjects were published in the Department's weekly release "Farm Notes". 64 trips were made to the Oliver Tree Nursery, and 3 trips to Southern Alberta and two to the Peace River district to attend meetings regarding special crops for these areas.

Horticultural Advisory Committee

This Committee is composed of representatives of the Field Crops Branch, University of Alberta, Research Stations of the Canada Department of Agriculture and representatives of the Horticulture industry in the Province. The Committee is responsible to and reports to the Crop Production Board.

REPORT OF THE HORTICULTURAL STATION BROOKS

Plantings on the new station reached promising stages of development during the year. Large stocks of seed from trees and shrubs were harvested and an excellent crop of seedlings was grown from seed produced in 1959.

Efforts continued toward farm improvement. Trial incorporation of sawdust and shavings into problem soil areas, to buffer the influence of alkali, showed very promising results. The area in Plot 7 was levelled for easier irrigation.

206 acres were devoted to trees, shrubs and orchards, 9 acres to potatoes and 10 acres to other garden and vegetable crops. As part of rotation practice grass, alfalfa and tame pasture occupied 40 acres, 24 acres were in summerfallow and 44 acres in oats. Buildings and grounds occupied 9 acres.

Approximately 4,800 man-days of labor were required in the Station activities. Of these 30% was used in propagating and shipping trees and shrubs, 20% on vegetable and potato experiments and 10% on orchards. Greenhouse work took 8% and ornamentals 2% of the labor outlay. Maintenance of buildings and machinery required 16%, general farming 10% and a miscellany of office, weather and other chores absorbed the remaining 10% of the labor outlay.

Herbicidal Weed Control

With a view towards cutting down on weeding costs a series of screening trials were set up involving eighteen different herbicidal compounds. Commencing in mid-May, the following work was carried out during this season.

Vegetables: Pre-emergent and post-emergent treatments on onions and carrots.

Field Crops: Pre-emergent treatments on popcorn and dry beans.

Ornamentals: Treatments on established stands of lilac, and lined out stock of Manitoba maple.

Orchards: Small-plot treatments on stands of plum and cherry.

Small Fruits: Post-transplanting treatments on late-summer-planted strawberries, and fall treatments on established strawberries and raspberries.

In addition to the above, a routine spraying programme was carried out to maintain weed control in orchards and lawns, established pastures and roadsides.

As this was an exceptionally dry season, the performance of pre-emergent herbicides which depend to a great extent on soil moisture was disappointing. This year's results should not be used as a measure of the efficiency of materials such as Randox, Vegadex, and Sesone, which were used on a wide range of tolerant crops on the Station. However, work on the Station, and comparisons with results obtained elsewhere, clearly indicated that the incorporation of such pre-emergents to a depth of between two and four inches may overcome some of the weed problems on the Station.

Outstanding results were obtained with the use of:

Atrazine @ 4 lbs./acre applied pre-emergently to popcorn.
Dows Premerge @ 3.6 lb./acre applied pre-emergently to beans.
Prometone @ 4 lbs./acre applied pre-emergently to carrots.

A combination of Simazine and Amitrol T (6 + 4 lbs./acre) was successfully used to control annual and perennial broadleafs, notably Canada thistle and Sow thistle, in established lilac.

A combination of Dowpon + 2,4-D low volatile ester (Esteron 99) at the rate of 10 lbs. Dowpon + 1½ lbs. 2,4-D in 100 gallons water, as a wetting spray, successfully controlled a wide range of annual and perennial broadleafs and annual grasses in established apple orchards.

Weeds in lawns, roadsides, and established pastures were successfully controlled with standard rate applications of low-volatile 2,4-D ester (Esteron 99), while Telvar (Monuron) proved satisfactory for weed control in driveways.

Propagation and Distribution of Trees and Shrubs

The open fall of 1959 permitted digging a total of 160,600 trees and shrubs for distribution. The larger part of this material was heeled in but some lots were wintered successfully in the root cellar. The objective in this trial was to have the mixed bundles made up before the start of spring work. Approximately 850 bundles of shrubs were packed for distribution.

Shipping, started on April 19th but was delayed by snow and cold weather. When completed on May 17th, 761 requests for shelterbelt stocks had been met and 280 orders totalling 3,500 fruit trees had been shipped. Twenty-nine lots of scion wood were supplied. Fruit trees were sent out to establish 19 new demonstration orchards, and 119 farm orchards, also 14 lots were requested to extend or replace existing orchards.

The Prairie Nurserymen's Field Day on August 8th, resulted in several requests for propagating material. 2,100 fruit tree buds and 2,500 buds of various ornamentals were supplied. Collection of various lots of planting material were sent to Provincial Institutions and Parks.

Wood ripening and leaf drop was late this fall resulting in a later-than-usual start on the fall digging of planting material. In the lattice frames a seedling digger built at the Station was used for the first time. This tractor powered tool reduced labor by sixty per cent in this phase of the work.

The harvesting, cleaning, and stratification of seed is very important in the growing of ornamental, fruit, and shelterbelt material. We raised about 85% of our seed requirement.

Studies continued to determine the best methods of storage to maintain the viability of seed. A Station pamphlet outlining stratification procedures on several hard-to-grow species was used by many growers as a guide to better seed germination.

Fruit Trees

In the Co-operative Fruit Breeding Project 9,515 apple and plum trees have survived from a total of 27,374 planted seedlings in 1953. In the last year 1,844 trees were removed. Ninety-seven trees of the Dolgo Test Orchard were killed by unknown causes and 67 new grafted saplings were replanted.

The apple orchards, all severely damaged by fire-blight, were sprayed with copper sulphate, after the infected branches were removed.

Good crops of apples and plums were produced from trees in Plot 8 and eighteen careful selections were made, two of which were rated as "good" in the culinary test. Seventy-seven of the plum trees were selected, and eleven were rated "good" in the same test.

Thirteen apricot selections were made. Nine pear trees of four varieties were planted to establish a new Pear Orchard. The average growth of this newly planted material was 4½ inches.

A total of 5,527 root stocks were budded between August 8 and 22, comprised of 1,071 apricots, 2,199 plums and 2,257 apples. Plum root stocks numbering 1,358 were grafted during late February and on the 11th of April, and planted in the lath-house on the 7th of June.

Small Fruits

Seventeen raspberry varieties were added to the replicated varietal trial. All varieties in the established raspberry plantation were winter damaged. Twenty-five varieties were harvested and processed. In order of merit the five highest were: Latham, Herbert, Honey King, Chief and Trent.

A new test plot of eighteen varieties of strawberries and an increase plot of disease free stock of British Sovereign were planted. A controlled-cross strawberry program was started with seed obtained from Morden. Seed of fifty-three crosses was stratified on March 9, and sown in flats May 13 and 16. The plants showed vigorous growth in the greenhouse and a total of 11,081 plants were field planted in August. Hardiness, vigor, quality, yield and disease resistance will be main factors in selection.

Potatoes

Potato Trials

The four highest producers of the fourteen varieties grown in the Prairie Regional Trial were: F4631, Warba, Norland and F52100. Check varieties Netted Gem and Irish Cobbler were 9th and 14th respectively.

In the National Adaptation Trial one-hundred-and-ten seedlings and varieties were planted. Of the seedlings 83 were from Fredericton, 5 from Brooks, 5 from North Dakota, 7 from Scott, 3 from Morden, 2 from Beltsville and 1 from Nebraska. Four other named varieties were included. Data from this and the Prairie Regional Trial have been compiled and reported to the National Potato Committee.

As an aid in evaluation, specific gravity readings were taken on Prairie Regional varieties and on our own trials. Culinary tests will also be used to screen results.

Nine varieties were grown in the Brooks Regional Trial. Delus was outstandingly high in "dry matter" while Keswick and Epicure rated "very good".

Nine Brooks seedlings, three named varieties and two foreign seedlings comprised this year's Adaptation Trial.

In the Early Tuberizing Trial we are searching for early setting and sizing ability. Data is collected on number of tubers per hill, total and marketable weights per hill at three harvesting periods, namely, August 1st and 15th and September 1st. Five Brooks seedlings and 17 other varieties and seedlings were grown. Placing highest at first harvest in order were: Bp 55-15-7, Norland, Warba, Epicure, Cherokee, USDA 135.49-3-51, Waseca and Delus.

Potato Breeding Program

Controlled cross seed from Fredericton, Winnipeg, Aberdeen and Hungary was sown and transplanted in the greenhouse in

August as part of a continuing program. Seedlings harvested numbered 7,249.

The 1959 seedlings, numbering 8,722 were field planted and 173 selections made. Reselection from annual trials has left two seedlings from 1954, four from 1955, three from 1956, thirteen from 1957 and forty-six from 1958. Specific gravity readings have been recorded for these Brooks seedlings.

Tuber Indexing Program

As a service in maintaining healthy potato seed stock, 4,096 tubers were indexed. Eleven growers submitted 2,706 tubers, the remaining 1,390 were from our station breeding program. Results were good, 95.5% of this stock submitted was returned to growers as disease free.

Vegetables

Varietal Trials

Four hundred and fifty-one varieties of thirty-four kinds of vegetables were grown in thirty foot rows. Yield and other data were recorded. This extensive trial is carried on to appraise the value and regional adaptability of the new varieties appearing annually, by checking their performance against that of known and presently recommended varieties, and testing their quality for freezing and household use. The accumulated data serves as the basis of our recommendations in the biennial revision of "Alberta Horticultural Guide".

Eighteen varieties of peas, carrots and onions were grown in the Prairie Vegetable Trials. Data was tabulated and forwarded to Mr. R. H. Anderson, Head Horticulturist at Melfort, Saskatchewan.

Cabbage Breeding

Plantings were made from seed obtained in the program started in 1950. From combinations of the inbred strains of Evergreen cabbage six lines have been selected and reselected. 244 types were grown for further testing.

Tomato Breeding

From forty-seven 1959 field selections, 3,548 plants were grown. Reselection of this material produced fifty-seven outstanding plants. Many from the Alred × Cloche Wonder cross are promising. Other blood lines produced outstanding selections; those from the Potato Leaf × Bison crosses being notable for good setting and sizing characteristics.

Our two new varieties, Globe Trotter and Red Bobs were distributed to 38 different locations for trial, and grown on a small commercial scale by ten farmers and market gardeners in southern Alberta. Red Bobs is ready for release to the trade, Globe Trotter requires further selection. Both were well received on local markets and wholesales. Both showed in the field ability to produce 6 to 8 tons of ripe fruit by the first week in September. Red Bobs proved the earlier variety, producing "field ripe" fruit by August 1st. A half acre planting of Globe Trotter, grown by Cornwall Canning Co., at Taber, gave larger fruit size, higher yield and fewer culls in comparison with an equal area of Early Lethbridge. Canning results were promising but inconclusive.

A four replicated randomized trial was conducted with 10 of the best performing commercial varieties and 8 of our seedlings including Red Bobs and Globe Trotter. In order, the five highest producers were: V132-2113, V132-2111, Red Bobs, Early Lethbridge and Alta Five. The V132-2113 yielded 8.1 lbs. ripe fruit per plant, the rest of the best performers between 6.5 and 5.6 lbs. Red Bobs was the earliest, giving the first ripe fruit on the 21st of July.

About 1,000 F_1 plants were grown from the latest crosses, and 90 selections made for further study.

Fruit and Vegetable Processing

A taste panel, consisting of five Station personnel, checked 139 varieties of vegetables after six months of frozen storage at –5° F. This test consisted of six varieties of Broccoli, three Broad Bean, twelve Green Bean, four Horticulture Bean, nine Pole Bean, eight Wax Bean, four Brussel Sprouts, eleven Carrots, nine Cauliflower, thirty-six Corn, three Kohlrabi, two Kale, thirteen Peas, eleven Peppers, six Spinach and two Swiss Chard. Fifty-four varieties and seedlings of Raspberries packed in dry sugar scored "fairly good". The 17 Rhubarb varieties and seedlings frozen in dry sugar pack were "good". All varieties with high scores were recommended for inclusion in the "List of Vegetable Varieties Freezer Tested", which is made available to the public through District Home Economist offices.

Two varieties and seventeen seedlings of rhubarb were frozen in a dry sugar pack. The fruit from thirty-nine Plum and nine Apple seedlings were checked for processed flavor. Eleven Plum seedlings and two Apple seedlings were scored "good". Six Apricot seedlings were tested for processed flavor. Six Cherries were also processed, three of which were scored "good".

Ornamentals

The Ornamental Block, which consists of shrubs, trees and woody perennials shows marked improvement following several seasons of interplanting and incorporating cover crops. Grass seeded between rows last year has improved its appearance and made it more accessible to visitors. Now clearly labelled, this growing material has greatly increased demonstration and extension values.

In their season the tulip and lily beds, the peony patch, iris, the herbaceous perennial border, beds and borders of annual flowers, the gladiolus garden and the hardy chrysanthemums attracted scores of visitors.

The gladiolus collection contains 850 named varieties, representative of all size and color classes. Heat vernalisation trials, in co-operation with the University of Alberta and the Canada Research Station at Lacombe were repeated on an expanded scale. Heat treatment of the corms before planting definitely advances the flowering date of most varieties and can be recommended for late varieties in shorter season areas.

The hardy chrysanthemums were late this season, but all varieties came into full bloom. The straw mulch last winter proved beneficial, the uncovered rows showing the greater winter injury. Mulching advanced blooming on some varieties.

Extension

Station personnel undertook thirty-eight extension trips, including five to service the greenhouse industry and twenty-one to attend farmer and special crops committee meetings. In addition forty-seven farm visits were made to observe and promote our two new tomato introductions.

Two major Landscaping Courses, entailing fourteen lectures were undertaken. Fifty landscape plans were prepared for farms, residences and public buildings. Nineteen Short Courses and two Conventions were attended. Other activities were participation in the Horticultural Advisory Committee and the Western Herbicide Weed Conference Meetings. Out of the province trips were made for lecturing and judging at Swift Current, a Horticultural meeting at Saskatoon, and attendance at the Royal Winter Fair. Eight trips were made to the Strathmore substation.

The Station was host to the Western Nurserymen's Association, the Potato Improvement Committee group, the Lethbridge Chamber of Commerce and the Agricultural Section of the Calgary Board of Trade. The Endiang 4-H Club and the Drumheller 4-H Club were given conducted tours, and Station facilities extended for a Plumbing School, a Building School and the local Agricultural Short Course. Five plant and floral displays were staged for local events and judges provided for six south Alberta shows. Station staff accompanied Western Nurserymen's tour to Lacombe and Edmonton, and on their own time, visited the Winnipeg Horticulture and Gladiolus International Show, and the Morden and Summerland Research Stations.

REPORT OF THE APICULTURE SERVICE

Honey production in Alberta is estimated to be slightly below 8 million pounds. This places Alberta as the second largest honey producing province in Canada. The crop was 34% above the 1959 crop. This was due to an increase of 51 pounds in production per colony, although there was a slight increase in the number of colonies.

The spring build-up of colonies was delayed by inclement weather and heavy losses caused by Nosema (a disease of adult bees). These losses were more than offset by excellent weather during the honey flow in July and a large increase in acreage of rape which proved to be an important source of nectar.

The quality of the crop was very good.

Markets

Even though the crop was one of the largest in the history of the province, increased demands for Alberta honey indicate there will be no surplus. Prices remained firm.

Disease Control

Twelve beekeepers were appointed for part time disease inspections of colonies. Several found it impossible to carry out routine inspections, but were used to investigate particular situations.

Inspections for American foulbrood were concentrated in the northern and central areas of the province. The southern area was covered extensively in 1959.

	1959	1960
Number of colonies inspected	7,884	8,491
Number of apiaries inspected	570	901
Number of diseased colonies	647	371

Two outbreaks of European foulbrood occurred, these were cleared up quickly without serious loss, by the use of the antibiotic terramycin.

Nosema disease caused heavy losses of bees and queens. It is extremely difficult to assess the causes of these losses, since the infected bees and queens either fly from the hive before dying or are removed by the worker bees as soon as they die, thus making it nearly impossible to find the dead bees to perform post-mortems. Extensive microscopic examinations of live samples from various areas of the province showed a high incidence of bees infected with Nosema apis, the protozoan causing Nosema disease. Little is known about the disease, the means by which it spreads, etc.

The antibiotic fumagillin shows promise in controlling Nosema, and considerable success was achieved in controlling the disease but the costs made it impractical for general use.

It is estimated that losses of queen bees ran as high as 15%.

The following table shows the number of colonies, the number of beekeepers, production, yield, and value of honey for years 1959 and 1960.

	1959	1960
Number of colonies	54,200	54,900
Number of beekeepers	1,540	1,670
Average yield per colony (lbs.)	94	145
Total honey production (lbs.)	5,095,000	7,960,000
Value of honey (dollars)	793,505.	1,194,000.
Value of wax and honey (dollars)	827,896.	1,247,000.

1960 figures—preliminary estimate

Extension

The Supervisor and his assistant spoke at twenty-three meetings. A one-week beekeeping short course was arranged and conducted. Four field days were organized. Assistance was given in planning and setting up pollination displays at the Calgary and Edmonton exhibitions. Fifteen articles were written for Farm Notes and beekeeping publications. Seven radio broadcasts were made, and one T.V. telecast. Over nine hundred apiaries were visited throughout the province on disease inspection or other matters relating to apiary management.

Report of the Livestock Branch

W. H. T. MEAD, Livestock Commissioner

W. C. Gordon, Livestock Supervisor (Cattle)
A. J. Charnetski, Livestock Supervisor (Sheep and Swine)
I. A. Coles, Supervisor of Feeder Associations
J. S. Lore, Livestock Supervisor (Performance Testing—Cattle)
J. J. Kallal, Livestock Fieldman (Cattle)
S. B. Clarke, Brand Recorder
W. S. Baldwin, Livestock Investigator (Stockyards)
J. Belzer, Livestock Investigator (Dealers and Butchers)
H. M. Link, Chief Clerk (Supervisor of Pounds)

Returns from livestock production continued as the steadiest and most readily available source of farm income. Beef prices did not recover from the drop experienced in the previous fall and averaged about $2.00 to $3.00 lower than in 1959. However the price of feeders and beef remained steady and strong throughout the fall and at the end of the year in spite of heavier marketings and predictions that increased marketings would force down prices below the summer levels.

Hog carcasses graded in Canada were about 20% less than in 1959. As a result, prices raised rather sharply toward early summer and remained at Alberta centres in the neighbourhood of $23 to $25 per hundred dressed weight. While hogs sold at well below the deficiency price level in the early months, higher prices through the summer and fall in all probability raised the annual average well above the deficiency payment level.

The sheep industry showed indication of a small gain in numbers, probably due to continued wool price support as the fat lamb market continued to hover around the support price level and the feeder lamb prices retained a close relationship to that level.

CATTLE

Cattle came through the winter of 1959-60 in good condition. Pasture conditions in early spring were only fair, particularly in central and northern areas, but improved about the end of May. Grazing conditions were good throughout the summer and fall in most areas and cattle went into the 1960-61 winter in good condition.

Ample feed supplies were available in most districts.

Alberta's cattle and calf population was estimated at 2,665,000 at June 1st, 1960, which is 4% higher than the June 1st, 1959 estimate.

Stock Inspection figures indicate 14% increase in marketings compared to 1959.

Pure bred breeders sold 3,104 beef bulls through 24 consignment sales. Sales were held at Calgary, Edmonton, Olds (two), Grande Prairie, Red Deer, Innisfail, Stettler, Lloydminster (two), Cereal, Lacombe, Brooks (two), Taber, Drumheller, Medicine Hat (two), High River (two), Lethbridge (two), Sangudo, and Camrose.

Breed	No. Sold	Total Value	Av. Price
Hereford	2,318	$1,010,589.50	$436.00
Aberdeen Angus	384	165,595.00	431.00
Shorthorn	402	148,825.00	370.00

The average price of bulls sold through sales was approximately $100 per head less than in the previous year.

CATTLE AND CALF SHIPMENT OUT OF THE PROVINCE

	1956	1957	1958	1959	1960
British Columbia	85,511	106,308	92,641	73,267	82,831
Saskatchewan	1,201	780	1,316	1,408	4,619
Manitoba	29,241	20,606	16,695	23,881	25,463
Ontario	84,669	56,772	52,838	52,569	77,423
Quebec	37,406	35,131	21,039	15,684	15,267
Nova Scotia	83	45	613	377	1,492
New Brunswick	44				
United States	1,123	108,957	200,882	72,928	45,112
Newfoundland					
Prince Edward Island					
Total	239,278	328,599	386,024	240,114	252 207

Cattle Improvement Policy

There were no changes in the terms and conditions of this Policy during 1960. Assistance to eligible applicants was 20% to a maximum of $75.00.

The following table shows the placement of bulls for the past five years:

Year	Policy "A"	Policy "B"
1956	505	
1957	572	
1958	642	1,058
1959	1,484	1,401
1960	1,911	1,690

Under the "A" policy 97 bulls were selected and purchased by the Department, the balance were selected by applicants subject to approval by a Department representative.

Federal-Provincial Beef Cattle Performance Testing Program

This program was initiated in the fall of 1959 and the procedure through which it came into being can be found in the 1959 Annual Report.

A complete report of the first year's activities was printed in the First Annual Report of the Alberta Section of the Federal-Provincial Beef Cattle Performance Testing Program.

The following table shows the extent of participation by pure bred breeders in the second year.

	No. of Herds	Male Calves Weighed	Female Calves Weighed	Total Calves Weighed
Aberdeen Angus	16	359	282	641
Hereford	40	555	480	1,035
Shorthorn	7	73	61	134
	63	987	823	1,810

This marks an increase of 11 herds and 627 calves over last year's program.

TORONTO ROYAL AGRICULTURAL WINTER FAIR

The 1960 Toronto Royal Agricultural Winter Fair was held November 11th to 19th. The Alberta exhibit comprised twenty-two carloads of livestock which were shipped via C.N.R. leaving November 3rd.

The shipment included 18 draught horses, 8 light horses, 6 carload lots of 12 steers, 5 groups of 5 steers, 30 single steers, 52 beef breeding stock, 10 dual purpose cattle, 26 dairy cattle, 27 hogs, and 68 sheep.

The arrangement whereby freight charges are borne by the Canada and Alberta Departments of Agriculture continued in force.

The following table summarizes prizes won by Alberta exhibitors:

	Horses	Beef Cattle	Market Cattle	Dairy Cattle	Sheep & Wool	Swine	Total
Grande Champion	...	......	1	...	2	......	3
Reserve Grand Champion	1	....	..	1	....	......	2
Champion	1	1	5	....	5	......	12
Reserve Champion	2	3	2	2	4	1	14
First Prize	3	5	8	2	14	1	33
Second Prize	5	5	8	3	11	5	37
Third Prize	5	9	6	2	5	2	29
Other Prizes	9	43	20	15	37	17	141
	26	66	50	25	77	26	270

Outstanding achievements:

Leo Halstead, Carbon—Grand Champion Steer

Byers Flour Mills, Camrose—Champion carload steers

Byers Flour Mills, Camrose—Champion group of five steers

P. J. Rock & Sons, Drumheller—Champion Suffolk Ram

John Wilson, Jr., Innisfail—Champion Corriedale Ram

John Wilson, Jr., Innisfail—Champion Corriedale Ewe

John Wilson, Jr., Innisfail—Don Head Trophy for Grand Champion Ram of the show

John Wilson, Jr., Innisfail—Grande Champion Fleece

Pickard & Clark, Carstairs—Reserve Grand Champion Holstein Female

Carl J. Hanson, Brightview—Reserve Grand Champion Percheron Mare

LIVESTOCK FEEDER ASSOCIATIONS

The Feeder Associations Guarantee Act continued to provide credit to farmers to secure feeder livestock for fattening.

In the 1959-60 feeding season there was a considerable increase in credit utilized by feeder associations over previous years. Thirty-three associations utilized a credit of $4,303,155.09 and fed 37,194 cattle and 13,350 lambs.

All loans under 1959-60 Guarantees were repaid.

Most feeding operations were satisfactory, particularly lamb feeding; some cattle feeders operated on a narrow margin.

One new association was organized in the Red Deer area at the start of the 1959-60 season.

Order in Council 120/60 provided for the Provincial Treasurer to implement the 1951-52 Guarantee to Westlock Feeders' Association, Limited, in the amount of $2,615.80. The Provincial Treasurer has since been reimbursed to the extent of $1,457.70.

1959-60 FEEDER ASSOCIATION OPERATIONS

Association	No. of Members	Cattle	Sheep	Amount of Credit
Acme	48	1,598		$ 218,978.28
Andrew-Willingdon	14	306		28,195.30
Bashaw	49	1,072	1,178	117,161.08
Battle River	72	2,120		250,056.43
Big Rock	14	470		48,919.54
Big Valley	42	1,410		145,200.20
Bowden	32	1,045		141,259.46
Bow Valley	40	917	2,708	116,806.15
Cardston	25	938		92,181.58
Carstairs	34	1,159		137,615.47
Central Alberta	48	1,541	992	168,955.74
East Bow Valley	28	1,052	795	103,407.28
East Central	42	1,559	863	178,201.93
East Olds	24	615	376	71,436.08
Hays	23	489	1,712	60,574.22
Highwood	40	1,258	96	142,735.76
Horse Shoe Lake	27	733		100,926.45
Innisfail	31	1,350		142,291.83
Knee Hill Valley	58	1,779		235,329.14
Little Bow	48	1,512		170,101.28
Marwayne	40	1,202		99,138.48
Meadowbrook	44	1,417	292	200,037.82
North Peace	30	554		53,697.09
Okotoks	13	318		39,447.12
Parkland-Stavely	37	1,314		151,440.73
Ponoka	35	1,048		122,519.66
Raven	36	1,326		150,598.50
Raymond-Magrath	24	1,047	322	114,542.61
Red Deer	37	1,136		127,360.76
South Slope	34	1,137		102,049.91
Taber	26	890	1,653	126,278.25
Tilley-Rolling Hills	57	1,218	2,285	139,326.44
Western	49	1,664	78	206,384.52
	1,201	37,194	13,350	$4,303,155.09

SUMMARY OF FEEDER ASSOCIATION OPERATIONS COVERING THE PAST FIVE YEARS

Feeding Season	No. of Associations	No. of Members	Cattle	Sheep	Amount Credit
1955-56	27	724	17,794	12,874	$1,651,635.24
1956-57	29	834	23,124	10,585	2,008,057.61
1957-58	32	844	24,507	14,514	2,351,826.26
1958-59	34	876	21,707	9,623	2,803,826.05
1959-60	33	1,201	37,194	13,350	4,303,155.09

ARTIFICIAL INSEMINATION

New interest continued steadily in this work resulting in the formation of one new co-operative unit at Vermilion, and an increased number of breedings in practically all existing associations. It is estimated that 62,000 cows were bred artificially in Alberta, compared to 49,500 in the previous year.

Numerous annual meetings, special meetings, and bull selection meetings of the co-operative Associations were attended by the Livestock Commissioner or the Supervisor of Dairy Cattle Improvement. The latter Supervisor continued to gather all available information on bulls and to meet with numerous bull selection committees. His office also compiled and released a monthly conception rate of all bulls used in more than one unit in Alberta.

Through co-operation of the Livestock Branch, the Dairy Branch, the Veterinary Services Branch and the University of Alberta, two three-day short courses were held at the University farm in March and April. Dr. J. M. McLean, Manager of the Quinte District Cattle Breeding Association at Belleville, Ontario, was brought to Edmonton by the Department to act as the featured lecturer at the courses. Members of the Livestock, Dairy and Veterinary Services Branches also assisted with lectures and demonstrations. Excellent co-operation was received from the co-operative and private breeding units. Twenty-one different units sent 23 technicians to the first course and 19 to the second. Dr. McLean's assistance in making this course a success was greatly appreciated by all concerned and is hereby acknowledged.

DAIRY HEIFER CALF POLICY

This policy was continued under the same conditions as in 1959. A total of 353 calves were supplied to 32 different 4-H clubs. Available calves were less numerous than in 1959, and further reduction in railway express services hampered shipment to many club areas.

SWINE

Alberta and Canadian hog marketings were substantially reduced in 1960. A change in Federal Government Policy from floor price support on unlimited marketings to that of Deficiency payments at $20.15 grade A basis, F.O.B. Edmonton on a maximum of 100 grade A and B hogs per farm is believed largely responsible for reduction in numbers as it removed the guarantee of support price on unlimited numbers to any one producer.

The quality of Alberta market hogs showed a slight improvement over 1959 as is indicated in a table elsewhere. Hog prices on Edmonton market reached a low of $16.80 per cwt, on grade A's during the week ending March 12th, and a high of $26.10 during the week ending September 10th. Average price for the year at Edmonton was $22.07, grade A basis. The Federal Government premium policy on A and B grade hogs was changed to become effective October 3rd. The $1.00 premium was removed from B hogs and the premium on A hogs was increased from $2.00 to $3.00. This change appears to have created added incentive and demand for higher quality breeding stock, particularly for boars of R.O.P. ancestry. Price differential between grades remained the same as last year. Canada exported over 38,000,000 pounds, mainly to the United States, which equals over one-half million live hogs.

Demand for good breeding stock was good through the year. In general, pure bred breeders experienced keen demand for good quality breeding stock at very satisfactory prices.

The Lacombe Experimental farm held spring and fall draws for breeding groups of Lacombe hogs. It was announced that no further breeding stock would be available from the Station in that manner.

The Federal Record of Performance Swine Policy continued to operate very successfully. The 1959-60 report showed 160 Alberta sows completing the test with an average score of 75, average maturity index of 179 days, with average feed consumption of 336 pounds per 100 pounds of live gain.

A total of 14 pure bred swine sales were held during the year under the conditions of the Department's Swine Policy "B".

There were fewer requests for swine meetings than in 1959. A fairly large amount of time was required by direct requests from farmers in swine selection, feeding, and management, in suggestions for building renovations etc. 4-H swine clubs and other junior activities also required a fair amount of time.

PRICE AVERAGE COVERING ALL ALBERTA SALES 1959-60

	1959		1960	
Boars	Number	Av. Price	Number	Av. Price
Yorkshire	341	$ 72.79	442	$102.22
Tamworth	55	71.91	33	83.18
Berkshire	1	60.00	....	....
Landrace	75	88.03	56	91.86
Lacombe	6	133.34	25	146.90
Total and Average	478	$ 75.81	556	$102.06
Sows				
Yorkshire	469	$ 73.09	486	$ 83.26
Tamworth	50	62.00	37	75.13
Berkshire	3	68.33	......	....
Landrace	65	85.70	49	99.23
Lacombe	1	275.00	23	115.22
Total and Average	588	$ 73.86	595	$ 85.30

AVERAGE PRICE FOR ALL SWINE BREEDS AT CALGARY AND EDMONTON SALES

	Number	Av. Price	Number	Av. Price
	Boars		Sows	
1959	274	$ 81.72	376	$ 79.77
1960	356	106.42	397	92.69

PRICE AVERAGE FOR REGIONAL SALES ONLY (Not R.O.P.)

	1959		1960	
Boars	Number	Av. Price	Number	Av. Price
Yorkshire	122	$ 60.82	189	$ 91.29
Tamworth	17	68.09	2	98.75
Landrace	32	80.31	9	111.61
Lacombe	......	....	......	....
Total and Average	171	$ 65.19	200	$ 92.33
Sows				
Yorkshire	160	$ 63.24	180	$ 70.48
Tamworth	8	51.87	......	....
Landrace	19	72.63	16	72.50
Lacombe	......	....	2	78.70
Total and Average	187	$ 63.77	198	$ 70.68

AVERAGE PRICES AT CAMROSE R.O.P. SWINE SALES 1959-60

	1959		1960	
Boars	Number	Av. Price	Number	Av. Price
Yorkshire	26	$ 72.79	21	$113.33
Landrace	3	113.33	......	....
Lacombe	4	116.25	3	105.83
Total and Average	33	$ 81.74	24	$112.40
Sows				
Yorkshire	25	$ 61.00	22	$ 86.02
Lacombe	......	....	8	90.63
Total and Average	......	....	30	$ 87.25

Swine Improvement Policies

The Livestock Branch operated the Swine Improvement Policies "A" and "B" as in past years, including the Livestock Listing Bureau. There is a steady increase in the use of these policies especially by farmers from outlying areas, this not only gave wider distribution of higher quality breeding stock but also provided greater market outlets for the pure bred swine breeder.

The Record of Performance Sow Assistance Policy was revised in 1960. The revision provides for two levels of bonus: $40.00 on sows scoring 75 to 85 and $50.00 on sows scoring 86 and over. Application for bonus must be submitted by the sows' owner within 60 days of the date of issue of R.O.P. report. The payment of bonus is based on the condition that the whole herd is found free from infectious diseases and meets the minimum sanitation level when inspected by a member of the Provincial Veterinary staff.

During the year a certified Swine Herd Health Program was organized and got underway. This is reported in the report of the Director of Veterinary Services.

The following statistical data covers Swine Policy activities:

SWINE PLACED UNDER IMPROVEMENT POLICY "A" AND LIVESTOCK LISTING BUREAU

Year	L.L.B. Gilts	L.L.B. Boars	Policy "A" Boars	Total Boars
1956	9	13	185	198
1957	6	26	213	239
1958	9	19	234	253
1959	11	15	257	272
1960	3	27	264	300

This Total includes 189 Yorkshire, 89 Lacombe, 10 Tamworth, and 12 Landrace.

BONUS PAYMENT ON POLICY "B" BOARS AT ALL ELIGIBLE SALES

Bonus levels: Boars selling at $50.00 or less—$5.00
Boars selling over $50.00 are bonused at $10.00 per head.

	1957	1958	1959	1960
Number of boars bonused	355	430	288	370

RECORD OF PERFORMANCE SOW BONUS POLICY

Number and Breed of sows qualifying for bonus:

Year	Yorkshire	Tamworth	Landrace	Lacombe
1958	84	......	......	......
1959	84	......	3	4
1960	43	......	5	9

ALBERTA HOG GRADINGS FOR YEARS 1956 TO 1960

Grade	1956	1957	1958	1959	1960
	%	%	%	%	%
A	20.20	20.70	21.40	22.30	22.40
B1	41.20	40.90	41.10	49.30	47.60
B2	5.00	3.70	3.60	....	....
B3	5.20	6.10	6.40	....	....
C	14.50	15.50	13.70	13.80	15.20
Light	2.30	1.40	1.40	2.60	3.10
D	0.80	0.60	0.70	1.30	0.90
Heavy	2.10	2.90	3.00	2.50	4.20
Extra Heavy	2.40	2.50	2.60	1.80	1.70
Injured	0.03	....	....	....	....
Rdlg.	0.50	0.50	0.60	0.50	0.50
Stags	0.60	0.50	0.50	0.60	0.60
Sows	5.20	4.70	5.00	5.30	3.80

NUMBER AND VALUE OF ALBERTA HOGS SOLD AT INSPECTED PLANTS

Year	Total Number	Value per Pig	Total Sales Value
1956	1,571,029	$37.55	$59,025,934.00
1957	1,432,157	44.97	64,413,949.00
1958	1,812,186	41.17	74,618,843.00
1959	2,265,430	32.99	74,729,118.00
1960	1,764,695	32.76	57,809,266.00

ESTIMATED NUMBER OF SWINE ON ALBERTA FARMS AT JUNE 1st

1956	1,211,500
1957	1,300,000
1958	1,710,000
1959	1,780,000
1960	1,385,000

SHEEP

Interest in sheep production continued to be high in north western and northern parts of the province.

It is estimated that between 2,500 and 3,000 range ewes were purchased and moved from southern to northern areas, at prices ranging from $5.50 to $24.00 per head depending upon age and quality.

Demand for rams of the heavy wooled range breeds continues to grow. No doubt Federal Support price on wool at the 60 cent level F.O.B. Toronto is one of the contributing factors in this situation.

Sheep shearing and management schools continued to be popular in all sections of the province. These schools have contributed a great deal to better understanding of general sheep husbandry resulting in the increased demand for breeding ewes. A total of 16 shearing schools were organized by the Branch. Of these two were held at Dawson Creek and Fort St. John. B.C. at the request and expense of the B.C. Department of Agriculture. The co-operation and assistance of the Canadian Wool Growers' Association and their Edmonton Manager, Mr. R. Shopland, is greatly appreciated and is hereby acknowledged.

There was considerable correspondence on matters pertaining to availability of breeding ewes, types and breeds of sheep most suited to certain given areas and on sheep feeding, management, and housing. Several meetings were also held on these subjects.

Lamb finishing continued to be popular with many southern Alberta feed lot operators. It is estimated that approximately 70,000 feeder lambs went into feed lots in the fall. Prices on feeder lambs ranged from $14.50 to $16.60 per cwt. There were very few old ewes put on feed. 11,000 Alberta feeder lambs were exported to the United States.

Market lamb prices ranged pretty close to the support price of $16.30 F.O.B. Edmonton yards. Good lambs ranged from a low of $16.10 during October 8th to 22nd to a high of $22.20 per cwt. during the week ending June 4th.

Importation of Australian and New Zealand frozen lamb to Canada again amounted to over 22,000,000 lbs., a 15% increase over 1959 importations. Sheepmen hope for more orderly timing of imports to prevent imported lamb being offered on Canadian markets at the same time Canadian lamb is in season. Several sheep breeder meetings indicated a need for official ribbon branding of domestic lamb carcasses in order that the consumers can identify domestic lamb in the meat shops.

In 1960, wool clip was approximately 2,565,000 lbs. with an average fleece yield of about 9 lbs. per head. Federal deficiency payment to producers under its support price is expected to be about 22 cents per lb. in 1960.

Several flocks are now being "home" tested for Record of Performance. Necessary forms and instructions for this purpose are being made available by the Livestock Branch. The Branch arranged for two farm demonstrational flocks in the cross and rotational breeding of sheep. It is planned that these two flocks will provide "pilot" information for further expansion in this field.

Rams of Suffolk, Hampshire, Corriedale, and North Country Cheviot breeds averaged $114.87 at the July stud ram sale held at Calgary. The variation in quality is indicated in the price range from $40.00 to $500.00. Fall sales of pure bred sheep under conditions of the Department's Sheep Policy "B" where held at Calgary, Edmonton, Lethbridge and Drumheller.

COMPOSITE SUMMARY OF PURE BRED SHEEP SALES AT LETHBRIDGE, CALGARY, EDMONTON AND DRUMHELLER

	1959		1960	
Rams	Number	Av. Price	Number	Av. Price
Suffolk	69	$ 51.23	125	$ 47.78
Hampshire	24	40.91	44	47.84
Border Cheviot	8	32.19	....	....
N.C. Cheviot	20	65.38	53	53.87
Corriedale	29	67.50	41	56.10
Southdown	4	38.75	3	41.66
Oxford	1	30.00	9	51.39
Leicester	......	....	2	41.50
Total and Average	155	$ 53.06	277	$ 50.27
Ewes				
Suffolk	54	$ 31.98	41	$ 34.32
Hampshire	9	19.11	2	23.00
N.C. Cheviot	7	123.56	6	74.58
Corriedale	5	26.00	13	43.65
Southdown	8	18.38	8	38.13
Oxford	2	20.00	5	22.00
Total and Average	85	$ 36.01	75	$ 38.44
Grade ewes	192	$ 10.88	14	$ 20.57

The following table shows sheep placed under Livestock Listing Bureau and Sheep Improvement Policy "A":

	L.L.B.		Policy "A"	Total
Year	Ewes	Rams	Rams	Rams
1956	9	......	21	21
1957	....	2	62	64
1958	110 (grade)	6	73	79
1959	276 (grade)	8	91	99
1960	140 (grade)	6	93	99

1960 rams placement consisted of:

41 Suffolk	4 Rambouillet
14 Romnelet	2 Targhee
12 N.C. Cheviot	2 Hampshire
17 Columbia	2 Leicester
5 Corriedale	

POLICY "B" RAMS QUALIFYING FOR BONUS AT ALL ELIGIBLE ALBERTA RAM SALES

	A Grade Rams at $12.00	B Grade Rams at $8.00	Total A and B Grades
	No.	No.	No.
1957	57	45	121
1958	51	29	80
1959	58	28	86
1960	52	64	116

ESTIMATED NUMBER OF SHEEP IN ALBERTA AT JUNE 1st

1956	404,000
1957	450,000
1958	470,000
1959	530,000
1960	555,000

HORSES

Alberta's horse population at June 1st was estimated at 115,000 compared to 120,000 the previous year. The main outlet for horses continued to be one sale at Calgary, special sales at Class "D" Auction markets, direct shipment to processing plants at Edmonton and Swift Current, and a small export trade to the United States and Eastern Canada. Direct export to Eastern Canada was slightly higher at 570 head than the 508 head in 1959.

ALBERTA LIVESTOCK AND LIVESTOCK PRODUCTS ACT

The licensing of stockyards was carried out without change in regulations from the previous year. A total of 440 licenses were issued. Of this number 44 were altered either because of reclassification or change of ownership. Therefore 396 separate premises were licensed and operated under the following classes:

Class	B	C	D	E	F	G
Number	9	49	36	2	4	296

Six new class "D" Stockyards (auction markets) were licensed at Fort Macleod, Cardston, Claresholm, Wainwright, Lacombe, and St. Paul. One yard at Brooks was reclassified from "E" to "D".

Livestock Dealers and Livestock Dealers' Agents were licensed without change from regulations of the previous year. Total dealers and agents licensed was 731, about 10% less than in the previous year. This number was made up of 468 dealers and 263 agents.

It was not necessary to recall the bond of any dealer.

A number of investigations were carried out by Branch personnel regarding various types of complaints of livestock trading practices.

RECORDING OF BRANDS

Continued interest and activity in the registration of livestock brands is shown in the following statistical summary:

	Cattle	Horses	Sheep	Poultry	Fox	Total
New brands issued	1,788	271	3	......	......	2,062
Transfers registered	345	44	......	......	......	389
Certified extracts issued	5	2	......	.	......	7
Brands renewed	4,753	557	......	1	......	5,311
Brands cancelled	269	57	......	......	......	326
	7,160	931	3	1	......	8,095

The number of brands in good standing as at December 31, 1960:

Cattle	29,710
Horses	3,833
Sheep	27
Poultry	13
Fur Bearing	1
	33,584

A supplement to the 1958 Alberta Brand Book was compiled and published, which contains 3,789 brands, being all new brands allotted, brands transferred or reissued, during the period July 1st, 1958, to March 31st, 1960.

STOCK INSPECTION ACT

Continued decentralization of cattle markets through country auctions necessitated appointment of further Deputy Inspectors to conduct inspections at Vermilion, Wainwright, Trochu, Drumheller, Acme, Vauxhall, Claresholm, Bow Island, Hanna, Fort Macleod, Cardston, and Dawson Creek, B.C. In addition to sales at the above points that were inspected for the first time in 1960, and the regular inspection at the Edmonton, Calgary, Lethbridge, and Lloydminster markets, sales were also inspected at Grande Prairie, Leduc, Wetaskiwin, Ponoka, Red Deer, Innisfail, Olds, Camrose, Hardisty, Provost, Stettler, Coronation, Lea Park, Brooks, Medicine Hat, Walsh, Pakowki, Taber, Pincher Creek, Parkland, Lundbreck and High River. The above markets, plus six points at Edmonton, five at Calgary, two at Lethbridge, and three at Lloydminster makes a total of 50 separate premises where regular brand inspection service was required and provided. This rush to decentralization together with the irregularity of sale dates at certain points has not only added to the difficulty of providing adequate service, but has greatly increased the cost.

The total number of stock inspected at all markets and direct on export was 1,264,917 head compared to 1,109,576 in the previous year, for an increase of 14%.

Inspection of cattle returned to feedlot, cover crop and pasture from Class "A", "E", and "F" stockyards was 212,855 head compared to 208,095 head in 1959. Total "in" and "out" inspections covered was 1,477,762 compared to 1,317,671 in 1959. This was the highest total number of inspections ever recorded in Alberta in a single year.

Approximately 1,200 head of stock was held up by inspectors for further investigation of ownership and numerous stray cattle were returned to rightful owners. Inspectors co-operated to the fullest extent at all times with members of the R.C.M. Police. As in previous years, R.C.M. Police conducted the bulk of inspections in the Medicine Hat area with special assistance from Departmental inspectors at the Walsh sales. With the exception of that area, R.C.M. Police inspections were confined mainly to isolated inspections for direct export.

Butchers and Hide Dealers licensed totalled 240 compared to 261 in 1959. All butchers and hide dealers were visited at least twice by Branch inspectors.

Livestock Auctions Other Than Public Stockyards

Community cattle auction sales were reduced from 65 in 1959 to about 38 in 1960. The number of cattle sold in this manner was 30,900 head compared to 50,082 sold in 1959.

On the other hand, class "D" auction markets increased the number of all kinds of livestock sold from 455,893 in 1959 to an estimated 556,531 in 1960.

IMPROVEMENT DISTRICTS STRAY ANIMALS ACT

Four new pound districts were established, bringing the total of active pounds in operation to one hundred and thirty-eight.

THE HORNED CATTLE PURCHASES ACT

The policy of deduction for horned cattle was continued as in previous years.

The advertising campaign to promote the dehorning of calves was carried in two April issues of all weekly papers and farm journals circulating in Alberta, instead of in one issue as was done in 1959.

The following table shows the percentage of cattle with horns marketed at the main market centres:

	1949	1957	1958	1959	1960
Calgary	15.6	7.6	6.6	6.9	7.0
Edmonton	19.9	12.4	12.9	11.8	11.8
Lethbridge	....	8.9	8.4	8.2	7.5
St. Boniface	13.0	5.1	2.2	2.9	3.4
Community Auction Sales	10.0	4.0	3.5	4.2	3.7

PURE BRED SIRE AREAS

Pure bred sire areas remained in effect in the Municipalities of Athabasca and Vermilion Valley. There was no request from other areas.

GENERAL

Mr. F. P. C. Farley, Chief Brand Inspector at the Edmonton stockyards retired from the service in June and was replaced by Mr. Soren Thuesen.

Following is an outline of total numbers of some of the duties and visits conducted by all Branch Headquarters staff during the course of official duties:

Farm Visits	Meetings and Short Courses	Livestock Judging Assignments	Culling and/or Purchasing at Sales	Stockyard Visits	Inspections of Butchers and Hide Dealers	Sales Brand Inspected
1,568	126	60	50	283	675	17

In addition, the Livestock Commissioner represented the Department at meetings of the National R.O.P. Beef and Swine Committees at Ottawa in January and the National Brand Conference Convention at Seattle in July. He also continued to act as Chairman of the Provincial Committees on R.O.P. of beef and swine, and the Alberta Livestock Board, and as Chairman of a new Advisory Committee on the University of Alberta Beef Cattle Breeding Project.

ACKNOWLEDGMENTS

The continued co-operation of the various breed associations, sale and exhibition associations, and commercial organizations dealing in the livestock field, together with the support of the R.C.M. Police in matters of investigation and enforcement, of other Departments of the Government, and the Federal Production and Marketing Services, was greatly appreciated and is hereby acknowledged.

Report of the Dairy Branch

D. H. McCALLUM, Dairy Commissioner

L. M. Silcox, Supervisor, Dairy Factory Inspection
R. P. Dixon, Supervisor, Dairy Cattle Improvement
J. B. Linneboe, Ph.D., Director, Dairy Laboratory
L. H. Arnold, Supervisor, Frozen Food Locker Plants
W. A. McGrath, Charge of Dairy Statistics
*

GENERAL REVIEW

Increased milk cow numbers combined with better than normal pasture conditions resulted in total milk production amounting to 1,638 million pounds during the year. This represents an increase of 5 per cent over the 1959 production. The farm value of milk production amounted to over 49 million dollars which was an increase of 2 million dollars over the previous high value established in 1959. The total value of factory products plus that portion of milk used on farms amounted to 66.5 million dollars, also a new high for such values.

All manufactured dairy products were produced in greater quantity than during the previous year. Creamery butter output, utilizing 53.5 per cent of the total milk, increased to slightly more than 37 million pounds. This represents the largest make of creamery butter since 1944 when production was stimulated to meet wartime requirements. With only seven factories manufacturing cheddar cheese, the quantity produced exceeded 1.75 million pounds, an increase of 12 per cent over 1959. Ice cream output also recorded an increase of 12 per cent, while evaporated milk and milk powder production established new high levels. Fluid milk sales show little change from the previous year, however, the per capita consumption shows a downward trend. Milk sales from the larger centers under milk control have shown some increase, but this has been offset by decreases in the uncontrolled area.

Bulk tank operations were extended considerably in both the Edmonton and Calgary milk sheds. All fluid milk shippers serving the Edmonton market were equipped with farm bulk tanks by October 1st. Other farm installations designed to reduce labour such as pipeline milkers, milking parlors and loose housing were added to several of the larger dairy farms. It is significant that the number of producers supplying the principal markets has declined considerably in recent years, although the quantity of milk supplied has increased by more than 40 per cent since 1955.

During 1960 milk cow numbers showed an increase of 5,000 head with a total of 277,000 reported at June 1st. This reverses the downward trend which commenced in 1936. The average production per cow calculated on the basis of all cows kept for milk purposes and the total output of milk amounted to 5,915 pounds for a new all time record. The Cow Testing Service has continued

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*Farm Cost Studies transferred to Farm Economics Branch.

to expand with 11,694 cows on test which averaged 10,324 pounds of milk during the year.

The high quality of Alberta dairy products has been well maintained. This fact is emphasized not only by the grading statistics on butter and cheese, but also by winning practically all special awards on butter exhibits at the leading Canadian exhibitions.

ESTIMATED FARM VALUE OF ALBERTA MILK PRODUCTION 1960

The quantity, price, value and utilization of milk production during 1960 is reported in the following table. To indicate changes from the previous year the 1959 figures have been included.

	Year	Pounds	Milk Equivalent Pounds	Percent Total Milk	Price		Value
Butterfat for Creamery Butter*	1960	30,706,000	876,246,000	53.5	$ .658	per lb.	$20,197,000
	1959	28,230,000	805,587,000	52.2	.661	per lb.	18,655,000
Farm Dairy Butter	1960	2,246,000	52,556,000	3.2	.60	per lb.	1,348,000
	1959	2,448,000	57,283,000	3.7	.60	per lb.	1,469,000
Milk and Butterfat for Ice Cream (milk basis)	1960	.....	63,308,000	3.9	2.84	per 100 lbs.	1,800,000
	1959	.....	56,729,000	3.7	2.80	per 100 lbs.	1,591,000
Milk for Cheesemaking and Concentrating	1960	.....	77,342,000	4.7	2.68	per 100 lbs.	2,070,000
	1959	.....	65,458,000	4.3	2.73	per 100 lbs.	1,787,000
Milk Fluid Sales	1960	.....	307,604,000	18.8	4.61	per 100 lbs.	14,186,000
	1959	.....	304,185,000	19.7	4.60	per 100 lbs.	14,005,000
Cream Fluid Sales (milk basis)	1960	.....	57,797,000	3.5	2.81	per 100 lbs.	1,624,000
	1959	.....	56,308,000	3.6	2.79	per 100 lbs.	1,570,000
Milk Farm Home Consumed	1960	.....	146,400,000	8.9	2.62	per 100 lbs.	3,836,000
	1959	.....	141,700,000	9.2	2.63	per 100 lbs.	3,727,000
Fed Farm Animals	1960	.....	57,110,000	3.5	2.62	per 100 lbs.	1,496,000
	1959	.....	56,210,000	3.6	2.63	per 100 lbs.	1,478,000
Kept on Farms Skimmilk from Creamery Butter and Skimmilk and Buttermilk from Dairy Butter	1960	810,802,000	.....	.....	.35	per 100 lbs.	2,838,000
	1959	760,466,000	.....	.....	.35	per 100 lbs.	2,661,000
Total	1960	.....	1,638,363,000	100.0	.....		49,395,000
	1959	.....	1,543,461,000	100.0	.....		46,943,000

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*Includes butterfat used in the manufacture of butter oil.

ESTIMATED PRODUCTION AND VALUE OF FACTORY DAIRY PRODUCTS

The following table shows the quantity, price and value of dairy products manufactured or processed in Alberta dairy manufacturing plants during 1960 and 1959.

	Year	Quantity	Price		Value
Creamery Butter, lbs.	1960	37,336,000	$ .6250	per lb.	$23,335,000
	1959	34,322,000	.6217	per lb.	21,338,000
Cheddar Cheese, lbs. (including net increase in processing)	1960	1,755,000	.3882	per lb.	679,000
	1959	1,577,000	.4023	per lb.	634,000
Ice Cream, Gallons*	1960	3,724,000	1.74	per gal.	6,480,000
	1959	3,337,000	1.74	per gal.	5,806,000
Fluid Milk Sales, lb. (including processing charges)	1960	307,604,000	6.10	per 100 lbs.	18,769,000
	1959	304,185,000	6.10	per 100 lbs.	18,567,000
Cream as Milk, lbs, Fluid sales (including processing charges)	1960	57,797,000	4.30	per 100 lbs.	2,485,000
	1959	56,308,000	4.29	per 100 lbs.	2,415,000
Skimmilk and Buttermilk Sales for Human Consumpion (including processing charges)	1960	17,434,000	3.43	per 100 lbs.	598,000
	1959	15,939,000	3.41	per 100 lbs.	544,000
Skimmilk, Buttermilk, lbs.	1960	41,877,000	.35	per 100 lbs.	147,000
	1959	41,214,000	.35	per 100 lbs.	144,000
Whey, lbs.	1960	14,710,000	.175	per 100 lbs.	26,000
	1959	13,142,000	.175	per 100 lbs.	23,000
Miscellaneous Manufactured Products**	1960				4,533,000
	1959				3,902,000
Total	1960				57,052,000
	1959				53,373,000

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*Mix converted to Ice Cream on basis of 100% overrun.

**Includes concentrated milk products, cottage cheese, whey butter, cheese other than cheddar, yoghurt, butter oil and butter concentrates.

BRANCH EXTENSION ACTIVITIES

Meetings

Branch personnel were again active in attending and addressing meetings of dairy producers, dairy cattle breeders, dairy plantmen, locker plant operators and 4-H dairy calf clubs. In cooperation with the Alberta Dairymen's Association, the Dairy Branch organized the provincial dairy convention, regional conferences for dairy plant workers and dairy field days. Meetings with boards, committees, and individuals in related work continued to demand considerable time on the part of senior branch officials.

New Programs

Officials of the branch were active in organizing and carrying out two new programs in 1960. The Grassland Improvement Competition designed to improve the quality and quantity of pasture and hay for dairy farmers has proven to be a very worth while program. Approximately 50 farmers in the four municipalities adjacent to Edmonton entered this contest which was supported by local dairies, fertilizer companies and the Seed Growers' Association. The field day held in early July and the dinner meeting in November afforded the contestants an opportunity to gain practical information on this important phase of their operations.

The Dairy Princess Competition, organized on a national basis, required considerable assistance on the part of branch personnel in organizing regional and provincial elimination contests prior to selecting the provincial winner at the Edmonton Exhibition. The 1960 winner was Miss Betty Lou Handsaeme of Lethbridge. She received a trip to the C.N.E., Toronto to observe the Ontario contest and will return to the C.N.E. in 1961 to compete in a national contest.

Publications

Press and radio news items pertaining to related work of the branch were prepared for release through the Radio and Information Branch. Monthly newsletters and special circulars were prepared and distributed to the industries being served. Illustrated leaflets dealing with production items were prepared and distributed through dairy manufacturing plants.

Diploma Course in Dairying

Assistance was again given to the Department of Dairy Science, University of Alberta, and Canadian Vocational Training in conducting the six month Diploma Course in Dairying. This being the eighth such course held every second year came to a successful conclusion during April 1960. Fourteen students completed the final examinations, eight were awarded diplomas and five received certificates.

Short Courses for Tank Milk Graders

Instruction courses of two days duration were held at Calgary and Lethbridge early in June. These courses provided information on milk grading and the approved methods of sampling, measuring and handling bulk milk. Examinations were held at the conclusion of each course and successful candidates received licenses as Tank Milk Graders.

Check Weighing of Butter

The Agricultural Stabilization Board continued to purchase and store creamery butter under Plan "B". Weight certificates were required by the Board under this policy. Official weighers working under direction of the branch issued 208 weight certificates. A total of 10,709 boxes were check weighed which represented 5,131,116 pounds of creamery butter.

DAIRY PLANT INSPECTION AND INSTRUCTION SERVICE

Inspection and Instruction

Eleven full time inspectors carried out 1,441 inspections at all licensed plants. At creameries, routine grading checks were made on 84,630 shipments of cream and official tests for butterfat content were run on 28,509 samples of milk and cream at all plants. Adjustments to correct errors in basis of payment were necessary on only .54% of the total grades and tests checked. Interpretation of technical details and their practical application in processing have become an important part of dairy inspectors' duties. This applies to manufactured, bottled and cartoned products. Details concerning product flavour, texture, body and finish as well as strict sanitation throughout processing and packaging are checked thoroughly with plantmen and operators. Seasonal changes in raw product condition requires that procedures be adjusted to assure uniformity in quality of finished products throughout the year.

Bulk Milk Handling

At the year end a total number of 571 farm bulk milk tanks had been installed on premises of fluid milk producers. During the year, dairy inspectors were present at and reported on satisfactory calibration or recalibration of 157 of the these tanks. Dairy Branch personnel at Edmonton, Calgary and Lethbridge also submitted reports on check weighing of 334 transportation tank truck loads of milk.

Competitions

Dairy Branch personnel have been responsible for assembling, final packing and shipping of dairy product exhibits to leading Canadian exhibitions. During the year, 218 exhibits of butter and cheese went forward to Brandon, Toronto (Royal and Canadian National Exhibition) and London (Western Ontario Dairymen's Association). Similar arrangements were also completed for transporting and shipping a small exhibit to the Scottish Dairy Show, Glasgow, Scotland. As in past years, the Alberta Department of Agriculture paid the actual transportation charges to the Royal Winter Fair and the ocean going freight on exhibits to Glasgow.

Outstanding quality of the butter exhibits was indicated by the fact that all but one of the special awards offered in all Canadian prize schedules, were won by Alberta creameries. Plants to which these special awards were made included: Northern Alberta Dairy Pool Ltd. at Bonnyville, Holden and Grande Prairie; Viking Co-op. Creamery Association Ltd., Viking; and Central Alberta Dairy Pool at Eckville and Stettler.

Details of annual competitions within the province were arranged by the Dairy Branch in co-operation with the Alberta Dairymen's Association and the Canada Department of Agriculture. Good workmanship by plantmen and producers was measured by these contests, winners of which were announced at the annual Dairy Convention. Many of these competitions are based on the results of systematic analyses of raw and finished products by the Dairy Branch Laboratory or from the current records for butter and cheese gradings by the Federal Dairy Produce Graders.

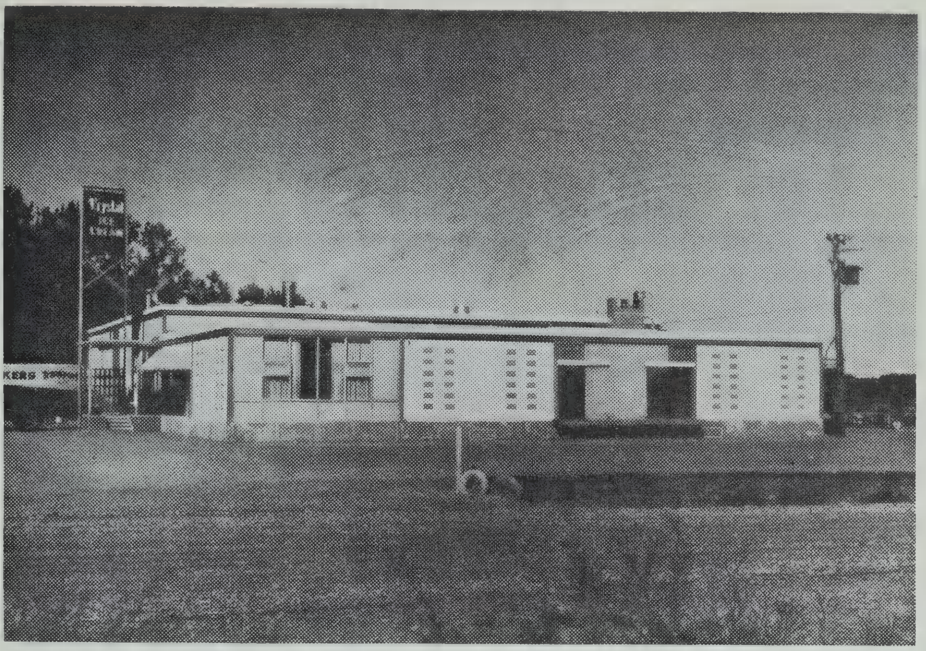
A panel of judges, made up from the industry and the Dairy Branch, met four times during the year at Calgary and Edmonton to score samples of similar batches of ice cream and cottage cheese. The samples of each product were collected and forwarded from all points of manufacture by Dairy Branch inspectors. Standard score cards for each product were averaged to establish annual winners in the Ice Cream and Cottage Cheese Quality Competitions.

Dairy inspectors were also responsible for preliminary scorings on dairy plants in their respective districts for the annual Good Housekeeping Competition. Final scorings to select provincial winners were carried out by branch supervisors.

Quality Control

A total increase in production of cream for buttermaking resulted in a slightly lower average quality. This decrease in quality was contributed to some extent by inexperienced shippers whose knowledge of the best methods to maintain quality appears to be limited.

Fluid milk quality in the main milk markets was at a high average level. All fluid milk being received at Lethbridge and



Union Mlik Company Limited plant at Red Deer, winner of the 1960 Good Housekeeping Competition for dairy manufacturing plants.

Edmonton was hauled by tank trucks from farm bulk tanks. Outlying producers of fluid and manufacturing milk continued to use the can shipping system. Quality requirements in all cases were well defined. In this, dairy inspectors conducted standard tests and forwarded samples for analyses at the Dairy Branch Laboratory.

Besides making regular tests to confirm quality of milk received, dairy inspectors conducted screening tests at plants in all areas to identify presence of antibiotics in raw milk supplies. Suspected samples were forwarded to the Dairy Branch Laboratory for confirmation by the official test.

Licensing and Bonding

Licenses to dairy manufacturing plants were renewed on a calendar year basis where passable operating standards existed and where a satisfactory bond was supplied.

Under supervision of Dairy Branch inspectors, candidates for grading and testing licenses, for both milk and cream were required to pass practical and written examinations. Inspectors also recommended issue of permits for limited periods to candidates who require additional experience. Before renewal of license, individual performance of previous license holders was subject to review. Licenses issued during 1960 were as follows:

Form "A" (Milk and Cream Testers)	269
Form "B(C)" (Cream Graders)	216
Form "B(M)" (Milk Graders)	167
(Tank Milk Graders)	64
Form "C" (Dairy Manufacturing Plants)	120

Dairy Manufacturing Plants

In 1960 there were 120 dairy plants operating. Of these, 66 were combination plants processing both milk and cream. Newly licensed operations during this year were Canada Safeway Limited, Edmonton (June 1); Provost Dairy, Provost (August 1); Silani Sweet Cheese Co. Ltd., Airdrie (October 26); Potestio's Italian Foodland, Edmonton (November 18).

Extensive renovation and/or expansion of floor areas were completed at many plants including Palm Dairies Ltd., Edmonton Main Branch; Union Milk Co. Ltd., Calgary; Northern Alberta Dairy Pool Ltd., Grande Prairie; Crystal Dairy Ltd., Medicine Hat; Model Dairies Ltd., Calgary; Central Peace Dairies Ltd., Rycroft; Central Alberta Dairy Pool, Acme.

Milk processing and bottling operations at Edson Dairy Ltd. and Sangudo Creamery Ltd. were transferred to Evansburg Creamery Ltd. where new modern processing equipment was installed. Distribution of finished products and receiving the local raw milk was continued from the Edson and Sangudo plants.

The milk processing department of Cochrane Creamery ceased operations in May. The distribution of milk for that area was handled by Alpha Jersey Dairy, Calgary. Derwent Creamery was sold by V. E. Christensen and operated by M. Weidemeyer.

The operation of Mountain View Dairy at Pincher Creek was leased to K. Donaldson by B. Zoeteman.

Nanton Creamery was purchased by A. de Kok from Mrs. R. M. Luther; change in ownership to be effective January 1, 1961.

Sparkle Dairy at Redwater was operated by P. Hrynchuk.

Vilna Creamery was purchased from S. Boychuk by Alex Kucher.

LABORATORY SERVICE

General

The past year has again shown an increase in the number of samples received for examination as well as a greater diversification in types of material submitted.

In view of the extensive use of antibiotics in the treatment of mastitis and the comprehension by public health officials regarding the possibility of antibiotics entering the general milk supply, a check was made for the presence of antibiotics in a composite sample from nearly all producers of milk to the principal markets of the province. For similar reasons, a program of checking milk and dairy products for the presence of pesticide residues was instituted.

The laboratory assisted the Provincial Department of Health in determining the prevalence of Q-fever in dairy herds, although due to pressure of other work, the coverage was not as extensive as during 1959.

The starter service which has been provided the cheese factories for a number of years was discontinued at the end of 1960. It was felt that commercial cheese starters were readily available and that the service has performed the function intended.

The following tabulation indicates the number and type of material examined. For comparison, corresponding figures for the previous year have been included.

	Number of Samples	
	1960	1959
Butter Samples for mould and yeast	3,815	3,536
Bacterial creamery survey samples	75	70
Butter samples for pH determination	1,820	1,613
Milk Control Service	11,011	11,094
Milk samples for Brucellosis	139	....
Milk samples for Q-fever	1,992	4,048
Mastitis control service	8,101	4,854
Milk samples for antibiotics	969	....
Cheese samples	127	38
Ice Cream samples	583	381
Egg products	512	719
Miscellaneous	774	415
Total	29,918	26,768

As over 72 per cent of the total milk supply is utilized for creamery butter and fluid milk sales, it was therefore logical that the laboratory should devote much of its attention to these products.

Butter

The policy of checking closely the mould and yeast count in butter at all plants in operation was continued. The count in general has remained at a very low level throughout the year indicating sound manufacturing and sanitation practices. These results were made possible through the assistance of the inspection staff of the Dairy Branch in assisting plant personnel to interpret and apply the information contained in the laboratory report. The trend towards replacing the wooden churn with one made from metal has also been a factor. The result has been that this year's butter output has been singularly free from defects related to plant sanitation.

Uniformity of product was essential in merchandizing. With butter one of the characteristics most readily observed by the consumer was its slightly acid flavour. The keeping quality of the butter was also related to its acidity. It has been recommended by the Dairy Branch that the acidity of butter expressed in terms of pH should be kept between 6.95 and 7.30. The testing of 1,820 churnings gave the following result:

pH between 6.95 and 7.30	46.5% of the churnings
pH over 7.30	33.6% of the churnings
pH under 6.95	19.9% of the churnings

Compared to the result obtained in previous years, the trend was towards a butter containing less acid.

Milk

In terms of number of samples as well as laboratory time expended, milk testing has been the major function of the laboratory.

It was the policy to sample the products at each milk plant in operation at least once a month. These samples were subjected to a thorough examination from a public health point of view and certain chemical tests to ascertain that the product met the provincial requirements as to composition. If a product was found wanting, further tests were run to determine the reason. The final result was reported to the plant involved and the supervising inspector.

During the year a special effort was made to obtain samples from as many as possible of the raw milk producer-distributors. In addition to the regular tests, these samples were also checked for Bang's disease and Q-fever.

With many of the health units having laboratory facilities, they have been encouraged to run certain screening tests on the raw milk supply in their district, thereby obtaining the desired information more quickly and at the same time, relieving this laboratory of much of the raw milk testing.

Mastitis

Closely linked to the quality of the raw milk supply was the problem of mastitis. The number of samples received under the provincial mastitis control program was nearly double that of last year. Practically all samples were submitted through the local veterinarian who advised the herd owner as to treatment and herd management.

The results for all tests showed that 68 per cent of the samples were free from mastitis and 32 per cent either infected or suspicious.

In some cases herds came under test because the milk appeared abnormal to the milk plant operator. In other instances, samples came from herds that had been under test for some time and herd owners wished to keep mastitis under control.

It was increasingly evident that many herds with a moderate rate of infection and where the program would be particularly beneficial, were not making use of it. To make the program really successful, it appeared essential that some new approach must be worked out that will appeal to this group of herd owners and bring them under the program.

Antibiotics

As a direct result of mastitis, the possibility of antibiotics entering the milk supply became a very real one. A few suspected samples received early in the year from cheese factories and milk plants were found to contain antibiotics.

In a recent province wide survey where a composite sample from each of 1,017 herds supplying the fluid milk trade was examined for presence of antibiotics, it was found that 0.78 per cent of the samples contained antibiotics. Compared with figures obtained in similar surveys conducted in eastern Canada and particularly in the United States, the above figure was very low.

It is the intention of the laboratory to continue checking our milk supply for antibiotics from time to time.

Cheese

There was a considerable increase in the number of cheese samples received when compared with 1959. Most of the samples were for moisture and fat determination with some of the samples coming from recently established factories specializing in Italian type cheeses.

Ice Cream

The increase in samples of ice cream for analysis was due to samples being collected at soft ice cream stands. Most of these samples were submitted by health unit officials who felt there was need for closer checking on the sanitary condition of products handled at these outlets.

Egg Products

This was a continuation of the service which for years has been given the Poultry Marketing Division of the Federal Department of Agriculture. The service was provided on a cost basis.

Miscellaneous

Under this heading was grouped a great variety of material, such as chemical analysis of detergents, sanitizers, milk powder, butter salts, colour readings on butter, checking milk and cream samples for preservatives, etc. The laboratory supplied dairy plants with solutions and indicators as required.

There was a noticeable increase in requests for technical assistance with problems related to dairying.

DAIRY CATTLE IMPROVEMENT SERVICE

Division Activities

1. The principal activity of this division was the Cow Testing Service. Supervision, correspondence and checking of records were the responsibility of the supervisor.

2. General extension activities of the Branch—including field days, Grassland Improvement Competition and Dairy Princess Competition were engaged in by the supervisor.

3. Record analysis meetings were held at Edmonton, Lacombe and Athabasca. Herd owners analyzed their own records using charts and graphs provided.

4. Twenty three dairy bulls were purchased by the supervisor under the Cattle Improvement Policy in addition to purchase of female breeding stock.

5. Assistance to artificial insemination units in the matter of bull semen selection and conception rate reports was provided.

Cow Testing

A total of 11,694 cows in 455 herds were under test during 1960. This was a net increase of 1,418 cows and 48 herds over 1959.

Eighty-six new herds and 1,590 cows were placed under test and 729 cows in 38 herds that were under test in 1959 discontinued in 1960. This means that 557 cows were added to herds continuing on test.

The following table shows the increase in herds and cows under test in recent years:

Year	Herds	Cows
1956	265	6,279
1957	304	7,040
1958	358	8,709
1959	407	10,276
1960	455	11,694

(a) Mail Order

This program was the basic testing plan offered to herd owners throughout the province. Milk weights and samples were taken by the herd owners. Milk from each cow in the herd was, either weighed daily (Plan I), or weighed on one day a month (Plan II). Milk samples were forwarded by express, or parcel post, to one of the testing centres and tested by Dairy Branch officials.

The following table shows the number of herds and cows tested under the mail order system during the past three years.

	No. of Herds			No. of Cows		
	1958	1959	1960	1958	1959	1960
Plan I	90	93	95	1,446	1,679	1,807
Plan II	191	231	271	4,140	5,163	6,185
Total	281	324	366	5,586	6,842	7,992

From the table it can be seen that 42 more herds and 1,150 cows were tested under the mail order system during 1960 than in 1959.

(b) Owner-Sampler Route Plan

This program operated in the Edmonton area. It differs from the mail order system in that a full time fieldman delivered and picked up the sample boxes monthly. In addition to giving advice on record keeping and sampling, all heifer calves were ear-tagged and identified.

The following table shows the number of herds and cows tested under the owner-sampler route plan system during the past three years:

	No. of Herds			No. of Cows		
	1958	1959	1960	1958	1959	1960
Plan I	2	4	3	59	176	147
Plan II	75	79	86	3,064	3,258	3,555
Total	77	83	89	3,123	3,434	3,702

From the table, it can be seen that 6 more herds and 268 more cows were tested under the owner-sampler route plan system during 1960, than in 1959.

During 1960 the field man made 1,020 farm visits, ear-tagged 891 calves and maintained calf record books for 73 herd owners.

A total of 12 new herds were put under test in 1960 on the route plan.

Testing Centres

Testing centres were in operation at Edmonton, Ponoka, Red Deer, Calgary, Lethbridge and Fairview. Testing at the Edmonton centre was done by a full time laboratory technician assisted by the fieldman. At the other centres testing was done by the resident dairy inspector with assistance from part-time clerical help.

The following table shows the number of tests conducted at each centre during the past three years.

Testing Centres	1958	1959	1960
Edmonton	34,676	36,986	42,607
Ponoka	9,343	11,159	11,892
Red Deer	10,406	11,921	13,537
Calgary	4,314	5,777	7,473
Lethbridge	2,982	4,635	5,437
Fairview*	....	2,098	2,196
Total	61,721	72,576	83,142

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*Fairview centre commenced operation in December of 1958.

A total of 10,566 more tests were conducted in 1960 than in 1959.

The following table indicates the extent to which the two plans of testing were utilized by herd owners and shows the average production under each plan, together with the provincial average for all cows on test. Comparable figures for 1959 are shown in brackets.

SUMMARY

	Plan I*	Plan II**	Total
No. of herds under test	98 (97)	357 (310)	455 (407)
No. of cows under test	1,954 (1,855)	9,740 (8,421)	11,694 (10,276)
Average number of cows per herd	19.9 (19.1)	27.3 (27.2)	25.7 (25.2)
Number of cow years (T)	1,471 (1,281)	7,037 (6,115)	8,508 (7,396)
Average number of cow years per herd	15.0 (13.2)	19.7 (19.7)	18.6 (18.2)
Average production of milk (pounds)	10,207 (10,196)	10,349 (10,377)	10,324 (10,346)
Average production of Butterfat (pounds)	360.6 (365.6)	360.9 (360.2)	360.9 (361.2)
Average Test (%)	.... (.........)	.... (.........)	3.50 (3,49)

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*Plan I—Daily weighing and monthly tests.

**Plan II—Computed records from one day's weighing and monthly tests.

(T) Herd averages on the basis of cow years. The total number of cows on test during the year was used in determining the herd average, except where new cows were placed on test, or a cow was sold or died; in these cases only that part of the year in which she produced was used.

The average production of all cows on test showed a small decrease of 22 pounds of milk and 0.3 pounds of butterfat during the year 1960 compared to 1959.

It was worthy of note that the high level of production achieved in 1959 was maintained in 1960. The Lethbridge and Calgary centres reported slightly lower averages, while Red Deer, Ponoka and Edmonton recorded small increases.

Reports and Competitions

1. Individual certificates of production were issued for all cows completing the necessary production and recording requirements. Commencing May 1960, graded certificates were issued to cows completing requirements under Plan II. Previously green seal (D) certificates were issued for such records, but these were discontinued during June 1959.

2. Annual reports showing both total and average milk and butterfat production were sent to all herd owners as well as to district agriculturists' offices.

3. Honor Roll listing of all herds of 5 cows or more, producing an average of over 400 pounds of butterfat was compiled. A total of 82 herds qualified in 1960 as compared to 77 in 1959.

4. Higher production and herd improvement was encouraged through competitions. Awards to the owners of the ten herds standing highest in each of the two competitions were presented at the Alberta Dairymen's Convention.

FROZEN FOOD LOCKER PLANTS

The licensing, inspection and instructional services to the Frozen Food Locker industry continued as a function of the Dairy Branch throughout the year. A total of 1,043 regular inspections were made by the eleven district inspectors. In addition, the supervisor made at least one inspection of every plant in operation. The usual amount of correspondence dealing with administration of the Act and Regulations was handled by the supervisor. Assistance in planning alterations to existing plants and the establishment of new slaughter houses was again given to several locker plant operators.

The scoring of all plants for the Merit Award Competition and for Proficiency Certificates was again carried out by the inspectors with the top plants in each district rescored by supervisors of the branch. Thirty two Proficiency Certificates were issued to operators who met the high standards for plant operations, sanitation and services offered. Following is a list of the 1959 winners of the Merit Award Competition which received recognition at the Alberta Quick Freeze Locker Association Convention held during February 1960 in Calgary.

Section A (300 or more lockers)	Section B (less than 300 Lockers)
First—Central Alberta Dairy Pool, Rimbey	Spoors Meat Market & Locker Plant, Rocky Mtn. House
Second—Redi-Food 'N' Freezers, Edmonton	Denonn's Meat & Locker Plant, Nanton
Third—Home Provisioners, Calgary	Peace River Meat Co., Sexsmith

The following tabulation was prepared from data supplied on monthly reports and covers a 12 month period ending November 30, 1960. For comparison similar data for the previous year is included.

TABLE I

LOCKER PLANT OPERATIONS

	1960	1959
No. of animal food plants	3	3
No. of plants in operation December 1st	136	141
No. of plants reporting	141	144
No. of lockers installed	37,646	40,169
Average number of lockers installed	269	281
No. of lockers rented December 1st	26,316	29,077
Percentage of lockers rented December 1st	69.9	72.4
Average lbs. of food stored per locker with complete service	346.7	361.6
Average lbs. of food stored per locker with incomplete service	202.2	234.1
Average poundage per locker—all plants	327.2	351.1
Average lbs. per locker on the basis of lockers rented for 12 months	330.0	356.4
Inspections during the year	1,043	1,108

A decline in the number of plants in operation, the number of lockers rented and the amount of food processed was reported during the year. The number of plants in operation dropped to 136, the fewest since 1949, while 2,961 fewer lockers than in 1959 were reported rented. The total amount of processing for both lockers and home freezers amounted to 18.5 million pounds, a drop of more than 800,000 from the previous high of 19.3 million pounds during 1959. The increased sale of home freezers and a slump in retail trade during the early fall were responsible for the change.

Lockers plants which discontinued operations during the year were located at Airdrie, Chauvin, Innisfail and Lethbridge. None of these plants were offering complete processing services. The plant at Milk River discontinued renting lockers but continued the processing from remodelled slaughter house facilities.

To illustrate the number of plants operating, lockers rented, food processed and the trend towards home freezers over a period of years, the following tables are included.

TABLE II

LOCKER PLANT OPERATIONS 1944-1960

Year	No. of Plants Operating	No. of Lockers Installed	No. of Lockers Rented	Per Cent of Lockers Rented	Average Lbs. Per Rented Locker
1944	34	8,966	....	No Record	. ...
1945	61	16,770	13,572	80.9	326.0
1946	83	22,421	18,640	83.1	308.3
1947	97	28,109	25,241	89.8	348.0
1948	118	35,571	32,616	91.7	359.2
1949	134	44,020	40,871	92.8	328.8
1950	141	48,647	43,802	90.0	305.2
1951	146	50,316	45,757	90.9	312.2
1952	148	51,617	48,617	94.2	353.3
1953	153	52,999	49,305	93.0	320.2
1954	154	51,984	46,560	89.6	316.9
1955	153	51,488	43,608	84.7	307.9
1956	148	49,304	40,159	81.5	320.5
1957	144	47,972	39,762	82.9	329.6
1958	143	44,196	32,992	74.6	322.1
1959	141	40,169	29,077	72.4	356.4
1960	136	37,646	26,316	69.9	329.6

TABLE III

AMOUNT AND TYPE OF FOOD PRODUCTS STORED IN LOCKERS

Year	Pounds Stored Lockers	Meat %	Fish %	Poultry %	Game Birds %	Big Game %	Cured Meats %	Lard %	Fruits %	Veg. %	Misc. %
1944				No Record							
1945	3,902,294	79.1	.8	6.4	.7	1.5	7.3	.5	1.9	1.7	.1
1946	5,171,026	75.7	1.0	6.6	.8	1.7	9.1	.7	2.3	1.7	.4
1947	7,782,419	74.4	.8	6.3	.7	1.5	12.0	1.2	1.3	1.3	.5
1948	10,353,430	75.7	.6	5.3	.7	.9	11.8	1.2	1.9	1.4	.5
1949	12,460,243	75.9	1.2	6.0	.6	1.8	10.1	1.1	1.3	1.2	.8
1950	12,895,363	75.3	.9	6.3	.6	.9	11.0	1.2	1.5	1.5	.8
1951	13,859,897	74.0	1.0	7.7	.6	.8	10.7	1.2	1.4	1.8	.8
1952	16,795,135	75.2	.8	6.7	.6	1.1	10.6	1.2	1.2	1.8	.8
1953	15,782,184	79.3	.7	6.7	.4	.4	8.1	1.0	1.0	1.8	.6
1954	14,919,055	81.0	.7	6.8	.4	.8	6.7	.9	.7	1.4	.6
1955	13,760,124	79.1	.4	6.8	.5	1.7	7.6	1.0	.6	1.8	.5
1956	12,792,131	78.7	.4	5.8	.4	2.9	7.6	1.1	.7	1.8	.6
1957	11,984,904	79.9	.4	6.7	.5	2.5	6.4	1.9	.6	1.5	.6
1958	10,639,199	79.9	.4	6.2	.5	2.9	7.9	1.1	.6	1.9	.6
1959	10,438,517	76.2	.4	5.3	.2	3.8	10.6	1.2	.5	1.2	.6
1960	8,675,136	77.0	.3	4.7	.2	4.9	9.4	1.1	.5	1.5	.4

PROCESSED FOR HOME FREEZERS

Year	Pounds	Meat %	Fish %	Poultry %	Game Birds %	Big Game %	Cured Meats %	Lard %	Fruits %	Veg. %	Misc. %
1953	1,534,919	76.5	1.2	1.3	.1	.1	4.0	.3	4.5	5.4	6.6
1954	2,299,791	83.8	.7	1.3	.0	.2	4.1	.3	3.0	3.6	3.0
1955	2,021,656	76.0	1.0	1.6	.1	.6	6.3	.5	5.1	4.7	4.1
1956	2,822,306	78.9	1.0	1.6	.0	.6	6.2	.6	4.3	3.5	3.3
1957	4,008,646	80.8	.8	1.4	.1	.7	5.4	1.1	3.8	2.8	3.1
1958	6,072,067	78.5	.9	1.7	.3	1.0	7.5	1.2	3.0	2.9	3.0
1959	8,949,798	78.3	.7	1.0	.1	1.4	10.2	1.6	2.3	2.1	2.3
1960	9,834,111	78.5	.5	1.1	.1	2.0	9.8	1.3	2.5	2.2	2.0

TOTAL VOLUME PROCESSED FOR LOCKERS AND HOME FREEZERS

	pounds		pounds
1953	17,317,103	1957	15,993,550
1954	17,218,846	1958	16,711,266
1955	15,781,780	1959	19,388,315
1956	15,614,437	1960	18,509,247

Milk Control Report

Submitted by the

PUBLIC UTILITIES BOARD

J. B. MOORE, Administrator of Milk Control

Fluid milk consumption during 1960 increased over 1959 in all controlled areas with the exception of the City of Medicine Hat. The Crow's Nest Pass Area shows the most marked increase, 26%. The percentage increase or decrease by area were as follows: Calgary 5.3% inc., Camrose 4.6% inc., Crow's Nest Pass 26% inc., Edmonton 1.7% inc., Lethbridge 2.4% inc., Medicine Hat 3.8% dec., Ponoka 7.8% inc., and Red Deer 2.8% inc. While overall consumption of fluid products increased the consumption on a per capita basis indicated a downward trend.

Production continued to show increases in all areas.

Licensed milk producers increased by 32, to a total of 945. The number of distributors remained the same, i.e. 23.

In addition to the issuance of Regulations with respect to fluid milk and cream, there were 19 Orders in all issued during 1960, the numbers of which are as follows: Orders Nos. 24410, 24499, 24500, 24501, 24525, 24540, 24764, 24765, 24766, 24771, 24772, 24825, 24877, 24878, 24887, 24931, 24990, 25031 and 25079.

The Board continued its active and financial support of both the Dairy Cost survey and Milk Foundation.

One producer license was suspended for a 7 day period because of the illegal purchase of milk. An illegal sale of cream in Edmonton resulted in the seizure and dumping of 10 gallons of product.

The Board was represented at an Executive Meeting and the Annual Convention of the International Milk Control Agencies, held respectively in Toronto and Las Vegas. The Milk Control Board was also represented and took active part in several other meetings held during the year.

Report of the Poultry Branch

R. H. McMILLAN, Poultry Commissioner

G. R. Milne, Poultry Supervisor

Inspectors:

K. Darlington	West Edmonton	J. L. Plumley	Red Deer
K. H. Rowe	East Edmonton	Wm. Hutchison	Calgary
G. O. Johnson	Camrose	G. E. Patsula	Fairview

GENERAL REVIEW

Interest of Alberta farmers in producing poultry products generally, continued comparable to that of the last few years. There continued to be a definite trend towards specialization and maintenance of economic units in commercial egg, broiler, and turkey meat production. New building and remodelling of existing buildings appeared to be greater than in previous years. Increased interest in cage laying plants was noted and a number built throughout the province. The number of broiler growers and size of individual unit increased during 1960 with the majority of growers handling 5,000 to 10,000 broilers per lot as compared to a few hundred in previous years. A similar development was noted in turkey meat production—fewer but larger production units.

The price trend of eggs for the past five years in Alberta has been downward and total production has been downward for the past three years. The year 1960 was the first year of the Deficiency Payment program or offer to purchase all surpluses by the Federal government at a fixed price.

Year	Total Eggs Produced millions of dozens Alberta	Weighted Egg Prices to Producers price per dozen Alberta
1956	45.5	31.9
1957	49.9	26.4
1958	47.6	25.6
1959	44.7	25.2
1960 est.	44.0	23.2

Production of commercial eggs for 1960, as indicated by registered egg grading station receipts was reduced from that of 1959 by 11 per cent. The number of producer vendors and more particularly the size of individual unit increased in 1960 and it is estimated that these producers account for 60.5% of market eggs sold to consumers either through retail outlets or direct. A definite preference for white shelled eggs continues to be noted as in excess of 80% of birds retained by producer vendors produce a white egg.

There is a new type of egg producer emerging in the industry. The producer in increasing numbers is (1) maintaining a larger flock, 1,000 or more laying birds, (2) conscious of quality egg production and, (3) marketing graded product direct to retail outlets or receiving a premium from a wholesaler for his product. We suspect the flocks of 100-200 or less laying birds are disappearing.

The Deficiency Payment Program for eggs, effective October 1, 1959, so far is considered to be successful. The net result for Alberta and Canada has been that the total laying flock for early

1961 will be slightly lower than a year ago hence surplus product reduced. For the payment year, October 1, 1959, to September 30, 1960, a deficiency payment of 2.4 cents per dozen grade A Large to a maximum of 4,000 dozen was declared. A payment of 8 cents per dozen was made to a maximum of 1,000 dozen grade A large for the 2nd quarter, January-March, 1960, and the amount paid to an individual producer for this period will be deducted prior to the final payment.

Fowl marketings were about comparable to 1959 and prices averaged 3 cents a pound higher than the level for the past few years.

Chicken broiler production again increased to 35% above that of 1959, with the price to the producer holding fairly steady.

MARKETINGS THROUGH REGISTERED STATIONS

1955	1,727,000 lbs.
1959	6,670,000 lbs.
1960	9,459,000 lbs.

Alberta is a deficiency area as far as chicken broiler meat is concerned. In addition to increased production in 1960, over 1959 some 380,000 lbs. of broilers were imported.

Broiler production is becoming a major segment of the poultry industry. Production of broilers is one phase of agriculture to which a business approach and management techniques have been applied. In varying degrees, broiler production is integrated with the hatchery, feed and processing industries interested.

Broiler raisers, because Alberta in total is a broiler deficiency area, have received a few cents per lb. more than growers in the rest of Canada.

Turkey poult production for heavy turkeys declined 15.5% from that of 1959. However, tonnage marketed through registered processing plants was not proportionately reduced.

Birds marketed in 1960 averaged 2 lbs. or better heavier and the marketings through plants increased while direct producer-consumer marketings decreased.

TURKEY MARKETINGS THROUGH REGISTERED STATIONS

Year	Dressed Weight
1956	9,215,831
1957	10,656,603
1958	9,651,000
1959	11,403,000
1960	11,002,319

Returns to turkey producers averaged 11 cents a pound higher than 1959.

Interest in turkey broiler production decreased markedly in 1960 with poult hatchings for this purpose reduced by 39%. This could be due to several factors such as consumer acceptance and poorer meat-carcass yield.

Import controls and price support for turkeys continued in effect in 1960. As a result of decreased production and the import controls the domestic price of turkey remained above floor level and the application of support prices was not required.

Imports of turkey hatching eggs decreased by 36.8% from that of 1959 and accounted for only 25% of all turkey eggs hatched in the province as compared to 50% in 1959. This year an unusual situation developed in that 200,000 turkey hatching eggs were exported by Alberta producers to the United States.

FLOCK APPROVAL

The inspection of chicken and turkey hatching egg supply flocks continued as a major project of the Poultry Branch. In addition to the permanent staff, an additional 9 temporary inspectors were employed from September through December carrying out the bulk of the flock approval work. However, broiler supply flock replacements and specialized commercial egg flock replacements are extending flock testing throughout the entire year.

TABLE I

FLOCK APPROVAL BY MONTH

	1959		1960	
	No. Flocks	No. Females	No. Flocks	No. Females
January	31	12,887	41	18,497
February	10	6,047	10	3,544
March	4	2,554	2	2,524
April	10	5,962	2	1,287
May	9	6,591	12	7,401
June	7	3,874	6	3,333
July	20	11,066	15	6,550
August	23	10,939	25	14,242
September	146	59,634	124	58,358
October	262	103,089	212	76,172
November	172	76,278	231	89,555
December	154	61,509	99	52,063

TABLE II

	Egg Production Matings			Broiler Production Matings		
	No. Flocks	No. Birds	Av. Size	No. Flocks	No. Birds	Av. Size
1956	991	343,538	346	65	25,896	398
1957	915	342,009	373	98	46,510	474
1958	752	304,645	405	92	48,861	531
1959	665	264,949	398	181	94,698	523
1960	598	227,455	380	178	91,029	511

All hatching eggs set in licensed hatcheries must be from inspected and pullorum disease free flocks.

Table III summarizes the number of flock and birds inspected and tested for pullorum disease.

TABLE III

SUMMARY OF FLOCK APPROVAL 1959-1960

(First Test on Completed Flocks)

Year	Method of Testing	No. of Flocks	No. of Birds	Av. Size of Flock	% Reaction
1959	Whole Blood	846	359,647	425	.050
1960	" "	776	318,484	410	.045

Rating of hatching egg supply flocks continued in 1960.

		% of Flocks		
	% Rating	1958	1959	1960
Group I	Over 80	14	16	15
Group II	70-79	56	61	60
Group III	60-69	28	22	24
Group IV	Under 60	2	1	1

Flock owners in Group IV were notified that they would not be permitted to ship hatching eggs until conditions on premises were improved. A number of these did bring their premises up to satisfactory standards for acceptance as a supply flock for hatching eggs.

Table IV summarizes total turkey flocks and turkeys inspected and tested.

TABLE IV

SUMMARY OF TURKEY APPROVAL 1956-1960

Year	No. of Flocks	No. of Birds	Av. Size of Flock
1956	45	25,802	573
1957	38	29,422	774
1958	42	38,493	916
1959	32	34,999	1,093
1960	44	53,395	1,213

The number of flocks inspected increased by 12 flocks, while the number of birds tested increased by 18,396 birds. The average flock size increased by 120 birds.

TABLE V

SUMMARY OF FLOCK APPROVAL BY BREED 1959 AND 1960

Chickens

	No. of Flocks Tested		No. of Birds Tested	
Breed	1959	1960	1959	1960
White Leghorns	226	213	127,178	124,763
New Hampshires	130	163	53,233	73,265
Light Sussex	145	118	49,783	38,571
White Rock	140	112	60,676	47,547
Barred Rock	50	39	15,126	12,840
Rhode Island Reds	25	22	12,616	13,506
Black Australorps	3	6	1,156	1,926
All Other Varieties	76	115	39,237	50,809
Total	795	788	359,005	363,227

Single Comb White Leghorn and leghorn type were most popular females used for mating accounting for 34.3% with New Hampshire and White Rock females following at 20.1% and 13.1% respectively. Franchised imported egg production strains accounted for an estimated 35% of total chicks sold for this purpose.

TURKEYS

Breed	No. of Flocks Tested	No. of Birds Tested
Broad Breasted Bronze	32	45,688
Broad Breasted Whites	12	7,707
Total	44	53,395

LICENSING AND BONDING OF DEALERS IN POULTRY AND POULTRY PRODUCTS

A. **Produce**—The Poultry Branch administers regulations respecting the Licensing and Bonding of Dealers in Poultry and Poultry Products under the Alberta Live Stock and Live Stock Products Act. Every person carrying on a business as a dealer must obtain a license to conduct such business. As of January 1, 1956, as protection to producers, all wholesale dealers were required to furnish a surety bond in favor of the Minister ranging from $1,000 to $10,000, depending upon the volume of business conducted.

TABLE VI

Year	First Receivers	Reg. Egg Grading Stations	Reg. Poultry Processing Stations	Reg. Poultry Eviscerating Stations	Reg. Poultry Grading Stations	Temporary Grading Stations
1956	46	140	21	8	8	4
1957	33	141	22	10	8	3
1958	21	144	24	10	9	3
1959	17	142	26	12	8	3
1960	17	137	23	13	8	0

B. **Hatchery**—The Poultry Branch administers regulations respecting the Production and Sale of Chicks under the Alberta Live Stock and Live Stock Products Act. All commercial and custom hatcheries with an incubator capacity of 1,000 eggs or more are licensed. Since 1951 commercial hatcheries are required to furnish a surety bond, in favor of the Minister, for protection of hatching egg producers, ranging from $2,000 to $5,000, depending upon incubator capacity.

TABLE VII

DEVELOPMENT OF HATCHERIES

Year	Breeder Hatcheries	Commercial Hatcheries	Egg Setting Capacity
1956	14	51	4,466,034
1957	13	52	4,698,818
1958	10	50	4,614,423
1959	8	50	4,807,462
1960	6	47	4,684,062

TABLE VIII
CHICK DISPOSITION

Year	% Hatchability	Chicks Hatched	Chicks Not Sold	Chicks Exported	Chicks Imported	Chicks remaining in Province
1956	69.0	9,495,784	577,267	279,728	346,574	8,985,363
1957	69.05	11,167,818	630,880	365,290	244,848	10,416,496
1958	69.8	11,454,597	727,795	581,018	310,951	10,456,735
1959	70.9	11,710,464	613,173	600,475	474,379	10,971,195
1960	69.4	12,358,830	739,453	525,186	113,303	11,207,494

TABLE IX
CHICK PRODUCTION BY TYPE

For Egg Production Type			For Broiler Production Type		
1960	1959	% Change	1960	1959	% Change
6,986,123	7,933,553	−12%	5,372,707	3,776,911	42.2%

Poultry production in Alberta hatcheries in 1960 was 1,211,030 poults, a decrease of 17.6% over 1959.

TABLE X
POULT PRODUCTION

Year	Eggs Set	Eggs Imported	Poults Hatched	% Hatchability	Poults Imported	Poults Exported	Poults on Alberta Farms
1956	1,535,611	450,000	809,459	52.7%	197,770	8,280	998,949
1957	1,763,449	592,150	1,006,734	57.1%	83,461	39,906	1,050,289
1958	2,011,546	924,591	1,162,178	58.8%	43,515	90,564	1,115,129
1959	2,593,650	1,222,124	1,470,164	56.6%	166,571	13,750	1,622,985
1960	2,184,672	500,100	1,211,030	55.4%	110,232	134,211	1,187,051

Importation of breeding stock in the form of U.S. franchises is decreasing. This past season there were 23 different franchises offered for sale as compared to 25 in 1959 and 21 in 1958. It is estimated that 2,445,000 egg production chicks, 5,100,000 broiler production chicks, and 848,000 poults were sold in Alberta from this stock is 1960. There are 5 Canadian franchised chicks offered for sale in the province.

TABLE XI
IMPORTATION FROM THE UNITED STATES
1960

	Chicken				Turkey			
	From Egg Production Matings		From Broiler Production Matings		From Meat Production Matings		From Broiler Production Matings	
	Eggs	Chicks	Eggs	Chicks	Eggs	Poults	Eggs	Poults
Jan.	3,240	......	14,760	378	77,800	......	......	......
Feb.	6,480	7,434	38,880	513	64,680	......	......	......
March	13,400	16,029	50,760	10,159	187,880	......		......
April	18,612	8,327	13,176	8,931	115,260	......	3,000	......
May	......	......	8,640	......	......	14,200	......	......
June	......	3,904	27,863	585	......	3,500	3,800	......
July	......	......	34,244	726	......	......	......	......
Aug.	......	......	11,821	216	......	......	......	......
Sept.	......	......	41,475	......	......	......	......	......
Oct.	......	......	20,684	120	......	......	5,600	......
Nov.	......	......	49,167	2,000	......	......	2,800	......
Dec.	......	......	17,728	132	34,040	......	......	......
Total	41,732	35,694	329,198	23,760	500,100	17,700	15,200	......

THE POULTRY INDUSTRY

Egg production in 1960 decreased approximately 11% to an estimated total of 33,030,000 dozen eggs. Egg marketings at registered egg grading stations are indicated in Table XII. These receipts represent about 44% of the total production, the balance being sold direct by the producer, or farm consumed or used for hatching purposes. Weighted egg price to producers dropped 1.8 cents compared to 1959.

TABLE XII

	Egg Receipts at Registered Egg Grading Stations (30 dozen cases)	Weighted Egg Price to Producers by Grade Per Dozen
1956	597,380	31.9 cents
1957	676,709	26.4 cents
1958	652,180	25.6 cents
1959	563,471	24.7 cents
1960	497,537	23.2 cents

Trends in marketing of poultry meat and turkey meat are indicated in Tables XIII and XIV.

TABLE XIII

POULTRY MARKETINGS THROUGH REGISTERED STATIONS
(Pounds)

Year	Chickens		Fowl	Turkeys	Ducks	Geese
	Under 4 lb.	Over 4 lb.				
1956	3,261,360	1,747,498	3,418,065	9,215,831	80,277	333,901
1957	4,129,761	1,987,221	4,220,058	10,656,603	70,905	565,705
1958	4,383,000	2,096,000	3,860,000	9,651,000	45,000	453,000
1959	6,450,608	1,573,157	3,570,034	10,697,190	43,929	374,729
1960	9,459,333	1,165,723	2,873,102	11,002,319	53,935	450,966

TABLE XIV

POULTRY EVISCERATED IN REGISTERED STATIONS
(Pounds)

Year	Chickens		Fowl	Turkeys	Ducks	Geese
	Under 4 lb.	Over 4 lb.				
1956	2,682,148	1,158,402	1,575,042	6,297,954	30,836	116,455
1957	4,363,666	1,559,538	3,181,891	6,881,831	56,643	271,931
1958	3,821,000	1,245,000	2,312,000	7,481,000	25,000	294,000
1959	5,628,526	1,134,345	2,059,150	8,722,805	29,810	313,158
1960	7,807,623	848,534	2,053,831	9,167,814	33,507	418,787

The laying hen numbers and market turkey numbers on Alberta farms is indicated in Table XV.

TABLE XV

FARM POPULATION

Year	Laying Hens	Turkeys
1956—Census (D.B.S.)	2,642,494	820,154
1957—(D.B.S.)	2,900,000	860,000
1958—(D.B.S.)	3,010,000	975,000
1959—(D.B.S.)	2,925,000	1,056,000
1960—Estimate (D.B.S.)	2,825,000	975,000

ALBERTA RANDOM SAMPLE TEST

The Alberta Random Sample Test, established to evaluate and compare breed and strain crosses of poultry available to the Alberta farmer is a 500 day egg production Test gathering data on entries from incubation through 12 months of lay.

Three Tests now have been completed and the fourth is currently underway. Numbers of applications received for these Tests continue to be more than double the available facilities, so that after Alberta breeders have been accommodated, entries are selected from other Canadian and American breeders, based primarily on their volume of chick sales in Alberta.

The Three Tests completed indicate that Alberta breeders have stock equal or superior to competing stock. An Alberta breeder led the 1st Test and two Alberta breeders headed the 3rd Test.

The following table indicates the performance of the entries in the 3rd Test in some of the economic factors tested for:

TABLE XVI

THIRD ALBERTA RANDOM SAMPLE TEST

Entrant	Egg. Prod. Per Hen Housed	% Grade A Large Eggs	% Laying House Mortality	Lbs. Feed Per Dozen Eggs	Net Income Per Hen Housed
1	219.0	52.0	10.0	5.0	$1.44
2	209.3	59.6	1.0	6.0	.89
3	208.4	64.2	13.4	5.2	.98
4	229.7	64.2	6.0	4.6	1.71
5	208.0	53.7	17.0	5.2	.86
6	230.2	66.1	3.0	4.8	1.55
7	224.3	70.3	5.2	4.6	1.60
8	206.5	73.3	16.0	4.9	1.37
9	197.5	58.8	11.0	4.9	1.04
10	205.4	47.5	7.0	4.9	.87
11	213.2	64.9	10.0	4.9	1.34
Average	213.8	61.4	9.0	5.0	1.24

Detailed reports were forwarded to the entrants at three month intervals, and the final report was distributed to a large mailing list and was made available for publication in poultry journals.

A trend is noted toward decreasing variation in economic factors between entries from the 1st to the 3rd Test, due to improved breeding and to more proven matings being entered. Also the level of performance from the 1st to the 3rd Test, based on egg production per hen housed, has increased 6.2%. The accompanying table indicates the differential between entries in each of the three Tests:

	Range in Net Income Per Hen Housed	Range in Egg Production Per Hen Housed
1st Test	$1.62	76 eggs
2nd Test	$1.23	44 eggs
3rd Test	$ .84	33 eggs

In addition to providing comparative evaluations of available stock, these Tests are of value in demonstrating the performance that may be expected under a good feeding and management program.

POULTRY SHOWS

The Toronto Royal Winter Fair was held again in November with entries of dressed poultry by producers and by commercial firms. Entries are pre-selected and only those of merit are forwarded. This dressed show is considered the show window of the industry and exhibiting there is of considerable value to Alberta producers as a whole, as Eastern Canada is a major market for Alberta surplus poultry.

ROYAL WINTER FAIR POULTRY PRODUCTS SHOW

(Alberta Awards)

	1956	1957	1958	1959	1960
Championships	1	1	......	......	......
Firsts	31	18	5	17	......
Seconds	7	15	12	3	4
Thirds	1	2	......	......	......
Total	40	36	17	20	4

The Alberta Poultry Show was again held in December. This year's Show attracted both more entrant and public interest.

BRANCH ACTIVITIES

The Poultry Commissioner attended annual meetings of the Canadian Produce Association (Western Division) and the Canadian Hatchery Federation. He also attended a meeting of the Continuing Committee to Canadian Random Sample Poultry Tests. The Poultry Commissioner and/or members of the Poultry Branch attended meetings of poultry producers, hatching egg shippers, turkey breeders, produce dealers, hatchery operators and committees dealing with various phases of the poultry industry.

The following table indicates the activities of Poultry Branch personnel:

Territory	Meetings, Short Courses		Requests for Service Calls		Re-inspection of Hatching Egg Flocks		Producer Vendor Calls		Broiler Grower Calls	
	1959	1960	1959	1960	1959	1960	1959	1960	1959	1960
1	3	2	118	98	169	69	......	55	......	37
2	2	3	85	95	203	152	......	23	......	......
3	3	1	65	48	165	165	......	19	......	......
4	4	2	27	37	115	98	......	18	......	18
5	5	2	46	52	116	140	......	45	......	12
6	6	3	31	38	40	30	......	54	......	......

A total of 1,346 farm visits were made in 1960 compared to 1,230 in 1959. These were in addition to visits made in the carrying out of hatching egg supply flock policies. The Tenth Annual Short Course for hatchery operators, sponsored by the Poultry and Veterinary Services Branches was held in Edmonton. Interest in this meeting is keen as indicated by the large attendance of those engaged in this field.

One member of the Poultry Branch staff attended the training course in Farm Management at Olds conducted by the Extension Branch. It is our opinion that material obtained at this meeting was of considerable value to our staff in broadening its scope of thinking when considering poultry in the overall farm enterprise.

A Hatchery Sanitation Control Testing Program was commenced by the Poultry and Veterinary Services Branches. Results were of sufficient merit to justify extension and intensification of this program. It continues to be a voluntary program, however all hatcheries are participating.

A series of meetings (11) with egg grading station operators and producer vendors (6) was conducted jointly with the Canada Department of Agriculture, Poultry Division. The primary objective of these meetings was to increase the production of quality eggs. It is of interest to note that during the 3 years this series has been held that during the month of July the per cent production of grade A eggs increased by 15% in Alberta as compared to 4% for Canada as a whole.

Report of the Fur Farm Branch

R. W. GILLIES, Fur Farm Supervisor

General

The season 1959-60, in most cases, was satisfactory to the Alberta fur farmers. Export of mink pelts from the Province showed a slight increase over the previous year. 135,343 mink pelts were exported for an estimated value of $2,684,500.00. The total live mink exported numbered 317 for a livestock value of $23,700.00.

Health

Fourteen cases of distemper were reported—some early in the whelping season, which resulted in rather heavy mortality on a few ranches. It becomes more apparent each season that mink farmers should at least protect their basic breeding herds against disease. While continuous effort was made to educate the farmers, many still insisted on taking chances.

Virus Enteritis for the first time was diagonsed in the Province on a mink ranch in the Calgary area during the month of August. The infected ranch and other ranches in the Calgary area followed recommendations by this Branch and the Veterinary Laboratory and immediately vaccinated against this disease. At the time of making this report, virus entertitis has been isolated to the one ranch. The diseased ranch was brought under control within a period of fourteen days, with less losses than was originally expected. Alberta ranchers can be truely thankful that there is now an effective vaccine for this disease.

A more complete report on mink diseases will appear in the Veterinary Services Annual Report.

Field Days and Shows

Due to the outbreak of disease mentioned above, the 23rd Annual Live Mink Show scheduled for Calgary was cancelled for this season. The local Associations, also as a protective measure, cancelled the showing of mink at the field days. This broke a continuous showing of mink at field days going back over a period of about twenty-five years.

It is hoped that field days at least will be resumed next season.

In lieu of the usual field days special educational meetings were conducted at Canyon Creek, Lac La Biche, Edmonton, Calgary and Calling Lake. The feature guests and speakers at these meetings were Mr. Arthur Prentice, General Manager of the Canadian Fur Auction Sales (Quebec) Ltd. from Montreal, Ken Montgomery, Alberta delegate to Canada Mink Breeders, and a member of the Veterinary staff who covered mink diseases, with particular emphasis placed on Virus Enteritis. These meetings, organized by the Supervisor, were well received and exceedingly well attended.

Fur Breeders Associations

Continue well organized locally and nationally. Canada Mink Breeders have organized to sell and advertise their own product under their own C.M.B. label. The co-operative selling agreement with the American Fur Breeders was disolved and Canada Mink Breeders' Association has done a masterful job of organizing to market and promote their Canadian ranch raised mink.

The Chinchilla Association continued active and held a successful field day and a show.

Office Extension

Numerous ranch inspections and personal visits were made by the Supervisor, and advice and assistance given whenever possible. A number of timely bulletins were issued throughout the year on fur farming subjects. Requests for information on mink, nutria, chinchilla, rabbits, etc. were answered through the Branch office. Assistance was given in the programing of local and directors meetings.

Fur Farms Act

In April, 1960, sections of the Game Act were amended to allow the Fur Farms Act to be presented and assented to by the Legislative Assembly. Fur Farms Act and Regulations are now entirely administered under the Department of Agriculture and this Branch. A special section was incorporated in the Act to keep fur-bearers confined in adequate cages and enclosurers.

Current Markets

The fur market in December, 1960, and January, 1961, opened with a marked price resistance appearing in some color phases of mink. The mink market will likely show a 15% to 20% decline for the season, which will be a real hardship to those in the industry. Adequate feed supply in some sections of the Province should compensate this decline somewhat. This drop in the pelt market should be a warning to the fur farmer to plan with care and to cut back on some color types.

Chinchilla pelts are still reaching the market in limited numbers and are being absorbed by the trade at moderate prices. Nutria has yet to establish itself in the fur market.

FUR FARM STATISTICS FOR YEAR ENDING AUGUST 31, 1960

NUMBER OF ANIMALS DECLARED ON FUR FARMS IN ALBERTA 1959-60

Kind of Animal	Total No. of Animals	Av. Value Per Animal Sept. 1959	Total Valuation
Mink Standard	44,156	$21.00	$ 927,276.00
Mink Mutation	147,363	19.50	2,873,578.50
Chinchilla	3,776	15.00	56,640.00
Fox	103	12.00	1,236.00
Nutria	227	5.00	1,135.00
Marten	2	15.00	30.00
	195,627		$3,859,895.50

Livestock Value on a pelt basis

NUMBER OF ANIMALS PELTED ON FUR FARMS IN ALBERTA 1959-60

Kind of Animal	Total No. of Animals	Av. Value Per Animal Fall, 1959	Total Valuation
Mink Standard	30,208	$21.00	$ 634,368.00
Mink Mutation	105,135	19.50	2,050,132.50
Chinchilla	690	15.00	10,350.00
Fox	82	12.00	984.00
Nutria	18	5.00	90.00
Marten	1	15.00	15.00
	136,134		$2,695,939.50

NUMBER OF LIVE ANIMALS EXPORTED FROM ALBERTA 1959-60

Kind of Animal	Total No. of Animals	Av. Value Per Animal	Total Valuation
Mink Standard	77	$100.00	$ 7,700.00
Mink Mutation	240	75.00	18,000.00
Chinchilla	26	100.00	2,600.00
	343		$ 28,300.00

NUMBER OF ANIMALS RETAINED FOR BREEDING STOCK IN ALBERTA 1959-60

Kind of Animal	Total No. of Animals	Av. Value Per Animal Dec. 31/58	Total Valuation
Mink Standard	13,871	$21.00	$ 291,291.00
Mink Mutation	41,988	19.50	818,766.00
Chinchilla	3,060	15.00	45,900.00
Nutria	209	5.00	1,045.00
Fox	21	12.00	252.00
Marten	1	15.00	15.00
	59,150		$1,157,269.00

FUR FARM LICENSES 1959-60 Season

Mink	302	Miscellaneous	2
Chinchilla	90	Fox	1
Nutria	14		
Mink, Marten and Chinchilla	1	TOTAL	413
Mink and Fox	2		
Chinchilla and Nutria	1		

Report of the Water Resources Branch

F. L. GRINDLEY, B.A., B.Sc., P.Eng., Director of Water Resources
R. E. Bailey, B.Sc., P.Eng., Chief Engineer
J. L. Reid, B.Sc., P.Eng., Supervisor, Hydroelectric Development
J. Mould, M.Sc., P.Eng., Supervisor of Irrigation and Drainage
A. G. Underhill, B.Sc., P.Eng., District Engineer, Calgary
R. J. Knight, B.Sc., P.Eng., District Engineer, Lethbridge
R. L. Francis, B.Sc., P.Eng., Construction Engineer, S.M.R.D.
E. T. Dean, A.I.M.M.E., Construction Engineer, Edmonton

Hydraulic Engineers:

W. Solodzuk, B.Sc., P.Eng.	B. L. Potter, B.Sc., P.Eng.
W. R. Bishop, B.Sc., P.Eng.	R. K. Deeprose, M.Sc., A.S.C.E., P.Eng.
I. H. Anderson, B.Sc., P.Eng.	A. R. Strome, B.Sc., P.Eng.

A. E. Murray, M.E.I.C., Office Engineer
D. E. Bowman, Groundwater Technician

Introduction

Generally speaking, climatic conditions in 1960 may be regarded as being dry although the relationship between actual precipitation and the long time average varied from one area of the Province to another. That part of the Province to the north and east of Lac La Biche received several inches above average while southern regions were particularly dry. The precipitation at Calgary was 13% below normal. The flow of the Bow River at Banff was 7% below the long time average. The flow in the Clearwater River at Rocky Mountain House was 25% below average and the flow of the Battle River near Unwin in Saskatchewan registered as much as 59% below long time records. Generally, the runoff throughout the whole southern and south-eastern portions of the Province was below normal.

Thus, again this year, water shortages predominated rather than flooding problems. Even in the Foothills region, west of Calgary, a water shortage became apparent for the first time in many years. Creeks, formerly relied upon to flow fairly continuously, became virtually dry.

Major flooding problems were confined to the Lac La Biche-Cold Lake areas where the level of these lakes reached an all time record high. This resulted in some concern and necessitated emergent action to protect property and restore disrupted transportation facilities. Farther to the northwest the Grande Prairie area received excessive amounts of rainfall during the month of July, but apart from this the Peace River area generally experienced a drier than normal year. Some towns in the McLennan area again had to resort to special measures to ensure an adequate winter supply of domestic water in their reservoirs.

This is the third consecutive year that the Annual Report has made mention of drier than normal conditions in various areas of the Province. Some have prophesied that we are entering a dry cycle and recent conditions have substantiated this prophecy. As a result, the benefits of irrigation are becoming more obvious. Again this year all previous records of water delivery have been exceeded on the St. Mary and Milk Rivers Development and Bow River Development. Had it not been for the available irrigation water, the yield of agricultural products in Southern Alberta would have been very low. Fall irrigation continued through the month of October on the Old man and Bow Rivers. Riparian rights on the Old man River were barely satisfied. The use of water that had been released from hydro power reservoirs (Calgary Power) and supplemented by natural flow helped materially to ease the water supply situation on the Bow River.

As a result of the high consumption of water, the St. Mary's Dam Reservoir and Ridge Reservoir were virtually exhausted of storage. Adequate water still remained, however, in the Chin Reservoir and other reservoirs on the S.M.R.D. to ensure against a serious water shortage should 1961 also be a dry year.

It is of interest to record here a fragment of the history of drought on the western plains. The article prepared by Mr. E. C. Hope, C.S.T.A. Review, March 1938 should be read in its entirety:

1. Since 1813 there have been two definite rather long periods of drought in Western Canada; 1885 to 1896, 11 years and 1929 to 1937, 9 years.
2. There is a strong possibility that there was a third period from about 1838 to 1848, lasting about 10 or 11 years.
3. From 1862 to 1868 there were four very dry years in Manitoba.
4. From 1917 to 1921 there was a dry period over most of Western Canada.
5. The period of the 70's and early 80's was probably the wettest periodin Western Canada for over a century.
6. Serious grasshopper outbreaks of economic importance took place in 1818 to 1820; 1857 to 1858; 1864 to 1868; 1874 and 1875; 1920 to 1922; 1931 to 1937.

All of Alberta's water resources policies are based on the incidence of drought. The production of hydro power is considered as secondary to the production of food and other vital uses of water.

Legislation

Two amendments were introduced into the Water Resources Act, one pertaining to Section 93 which provides for the Minister to enter into agreements with improvement districts as well as municipalities, towns, cities, villages,etc. for the purpose of sharing the cost of any drainage projects considered to be in the interest of the general public.

The second amendment was the addition of Section 94 which allowed the Minister to take action to designate potential flood areas along rivers or around lakeshores and to exercise control over the subdivision or development of such areas.

Prairie Provinces Water Board

Two meetings of the Board were held during the year, the first in Edmonton on July fourth and the second in Regina on December first.

At the meeting in Edmonton the main item of discussion was a proposal for a study of an integrated development of the Nelson River Basin. The original plan for a basin study appeared to be aimed principally at the Saskatchewan River. It seemed inevitable in all the previous Prairie Provinces Water Board discussions to single out the Saskatchewan River to the exclusion of all the other rivers including the Churchill, Nelson, Souris, Winnipeg, Assiniboine,, etc.

The Board decided that it would be desirable to implement a study of the Nelson Basin. It was estimated that the cost of such a study would be between one million and two million dollars depending on the cost of drilling on upstream storage sites in Alberta. The Alberta member indicated that he was unable to say whether Alberta would want to contribute financially to such a study, not only because there is nothing for Alberta to gain but because studies of upstream storages and diversion investigations are well advanced in the Province.

The meeting in Regina was of a general nature and as far as Alberta is concerned, the important item was the extension of the water reservation on the Red Deer and Clearwater Rivers for the William Pearce proposal. This reservation will terminate in two years and Alberta will be expected to prepare a formal report on the surveys made.

There was some discussion regarding navigation rights on the Saskatchewan River but once again the members were undecided as to whether the river was navigable or not. If the river is declared to be navigable at some future date it would indicate a need for the construction of expensive locks at Grand Rapids Dam, Squaw Rapids Dam, the Outlook Dam and several other proposed dam sites on the river in Saskatchewan and Manitoba. These navigation locks could cost many millions of dollars.

It is most important that the question of navigability of the Saskatchewan be determined before making any plan to develop the basin. Navigation rights are controlled by the Dominion under the Navigable Waters Protection Act. Under this Act it is quite possible to classify every river on the Prairies as navigable from Lake Winnipeg to the Rocky Mountains. Provision for navigation locks has not been included in plans for three dams now under construction at Grand Rapids (Manitoba), Squaw Rapids and the Outlook Dams (Saskatchewan). The legality for the above dams under Dominion legislation is not clear.

International Streams

Observations have been made on three streams that cross the international boundary. First, from the eastern side of the province, Sage Creek which has been closely watched for a number of years. The annual report, made following an inspection by United States and Canadian engineers, included some specific recommendations, some of which have already been completed. This creek flows south into the United States.

Second: Deer Creek which rises in the United States and flows into Canada. This stream has been watched and diversion ditches examined. Most of this stream is within the United States. To date no serious complaints have been received but will be necessary to keep in touch with this situation.

Third: the Milk River which rises in the United States, flows into Canada and, after a comparatively short distance, returns to the United States. The major situation of this stream is covered under treaty with the United States, however, there have been complaints over the years, and repeated in 1960, of nil flow at the

International Boundary at the South Fork near Del Bonita. An inspection was made in November by Federal, State and Provincial engineers and a joint report is being issued.

Gravel Removal

Gravel operations are becoming a considerable problem, both in our stream beds and banks, and a number of inspections have been made in 1960. Cooperation between the Department of Lands and Forests and Water Resources has been very good and both realize the situation is not one to be passed over lightly.

Special Areas

In accordance with the Federal-Provincial agreement mentioned in the 1959 Annual Report, whereby the province is to take over and maintain all projects in the Special Areas formerly constructed by the P.F.R.A., sixteen of the twenty-four projects were inspected by the Water Resources District Engineer at Calgary. These are essentially stockwatering dams which have been built over the years by the P.F.R.A. The sixteen projects inspected had been repaired where necessary and are now considered in a condition acceptable to the province. Negotiations on the agreements transferring these projects to the province are presently being undertaken.

A number of inspections were also carried out by the Calgary District Engineer of projects planned and built by Ducks Unlimited. Six projects met with provincial approval for inclusion under the province's program of sharing the costs of construction. Of the twenty-two projects completed by Ducks Unlimited in Alberta last year, thirteen were in the Special Areas and seven were in dried out areas south of Bassano.

Office Administration

There was a slight drop in the number of applications for all purposes during the year; 235 applications having been received as against 300 in the previous year. Of the total some 202 were located in the area in which P.F.R.A. assistance is being provided. For the sake of interest a breakdown of the applications in the twenty-one drainage basins is shown:

		Purpose of Application						
	Name of Drainage Basin	Dom.	Mun.	Irr.	Ind.	Power	Other	Total
1.	Athabasca River	1	......	......	1	......	......	2
2.	Churchill River	1	......	......	......	......	......	1
3.	Bow River	5	1	4	2	......	4	16
4.	Endon Slough	1	......	1	......	......	......	2
5.	Great Sandhills Group	4	......	......	......	......	......	4
6.	Kindersley Lake	1	......	......	......	......	......	1
7.	Lodge Creek	2	......	......	......	......	......	2
8.	Manito Lake	15	......	1	......	......	......	16
9.	Many Island Lake	7	......	1	......	......	......	8
10.	McGregor Lake	......	......	......	......	......	......	......
11.	Milk River	15	......	1	1	......	......	17
12.	North Saskatchewan	3	......	8	3	1	......	15
13.	Oldman River	19	......	13	1	......	......	33
14.	Pakowki Lake	12	......	7	......	......	......	19
15.	Peace River	3	......	..	......	......	......	3
16.	Red Deer River	44	......	3	......	......	......	47
17.	Sevenpersons Creek	21	......	9	......	......	......	30
18.	South Saskatchewan	5	......	2	......	......	......	7
19.	Sullivan Lake	3	......	3	......	......	......	6
20.	Tide Lake	5	......	......	......	......	......	5
21.	Wildhorse Lake	1	......	......	......	......	......	1
	Totals	168	1	53	8	1	4	235

Due to the use of diesel engineers on the railroads, the railway companies are abandoning many of their established watering points. These dams and reservoirs are mostly of the rock and timber crib variety, well built, and despite many years of service are still a valuable asset to the area. The C.N.R. offered four or five of its reservoirs to either the town authorities adjacent to their works, or to the Government of the Province. We are at present in course of taking over the Richdale Reservoir in the NW¼ 25-30-12-W4M and the Dobson Reservoir in the NE¼ 12-30-8-W4M. Approval was also given to take over the reservoir at Hanna located in the SW¼ 9-21-14-W4M.

The C.P.R. entered into negotiations with the Town of Innisfail for the purchase by the Town of the reservoir there and with the Village of Monarch for a reservoir in the SE¼ 1-10-24-W4M.

Plans of survey are proceeding to pass steadily through this office and to the various departments before being transmitted to the Registrar in Calgary. Fifty-seven sets of plans were examined, endorsed and approved for registration and forty-three registered plans were filed in the Water Resources Office during the year. Included in these were the plans for the Waterton River Reservoir.

Due to the requirements of the Oil and Gas Conservation Board for maximum recovery from oil wells there was a noticeable increase in applications for use of water from our major rivers and the more reliable streams. This use of water was entirely consumptive and while the largest licensed quality is in the neighbourhood of 1,400 acre-feet per annum, it is quite possible that there will be a tendency to exceed the licensed quantities. Supervision and watermastering of these projects is virtually impossible.

During the year two hundred and ninety-one Interim Licenses were issued, the majority, of course, being in connection with small water development schemes under the aegis of P.F.R.A. It may be remarked that this number exceeds that of applications received during the year and the explanation lies in the fact that a backlog of plans from the year 1959 were processed during the current year.

The export of natural gas from various points within the Province is fostering an increasing interest in gas processing and the by-products of sulphur, commercial pipeline gas and natural gasoline with the concommitant aggravation of both air and water pollution problems. When any application is made for a water right for industrial purposes in which there is any possibility of air or water pollution, the Department of Health is notified and this phase of industrial development is well controlled.

General Inspection Services

Again this year there was a substantial decrease in the number of inspections of small problems which the Department was required to undertake. This was again, a reflection of the relatively dry condition throughout the Province. These inspections arose out of investigations requested primarily from municipalities and individuals. Our engineers were required to give evidence at two court cases which arose out of what was originally a general complaint some years ago.

Financial Assistance Policy and Special Investigations

The Financial Assistance Policy under the provisions of The Water Resources Act was continued during 1960. This policy extends financial aid to towns, villages, counties, municipal districts and drainage districts facing serious drainage and flood control problems. The government pays one-half of the total cost of a project up to a stated maximum. Six financial aid projects were undertaken this year with the total cost to the government of $59,946.00. Whenever possible engineering assistance was also extended to the local authorities on these projects, otherwise consultant engineers were engaged.

Some new special investigations were undertaken during the year and further work was carried out on those projects listed in the 1959 Annual Report. For purposes of continuity, those projects on which some work was done in the past year will be considered in the same order as they were presented in last year's report.

1. **LaBlanc (Beaumont Ditch)**

The Municipal District of Leduc undertook to carry out the recommendations of the Water Resources Branch with regard to the LaBlanc Ditch proposal. This work was done under a fifty-fifty financial assistance agreement between the municipality and the government, the period of assistance being extended over three years.

2. **Little Burnt River**

The Municipal District of Fairview and the Water Resources Branch entered into a fifty-fifty financial assistance agreement for the construction of channel improvements on the Little Burnt River. Construction of the project was completed in the fall of 1960. Five thousand dollars of the cost was contributed by the Province. Clearing of brush from the banks and bed of the river was done by the municipality under the Federal Winter Works Program during 1959.

3. **Hines Creek Project**

Consideration of the Hines Creek flood control proposal is still underway. Additional surveys were conducted in the fall of 1960 and the final proposal will be presented early in 1961. This problem was complicated by the existence of numerous beaver dams and private stock-watering dams which are of considerable benefit to the individual farmer but, at the same time, are one of the main causes of the severe flooding problem in the Town of Hines Creek.

4. **Vixen Creek**

A proposed remedy for the Vixen Creek flooding problem is still being studied with the hope that some solution, satisfactory to all concerned, may yet be reached.

5. **Peavine Creek**

The Peavine Creek project was carried out under a financial assistance agreement with the Municipal District of Smoky River. This propect consisted of approximately one mile of new ditch construction together with two miles of creek realignment and clean out. This portion of the work was an extension to an existing ditch five miles in length previously constructed by the Municipal District. The project drained approximately 35 square miles of land which benefited 75 farmers in addition to assisting in the drainage of ten municipal roads.

The project was designed and supervised by Water Resources engineers; the government share of the cost being $10,000.

6. **Jean Cote Ditch**

The Jean Cote Ditch was the first work to be carried out under the new policy which provides for the Minister to enter into agreement with the Department of Municipal Affairs for the construction of drainage works in Improvement Districts. The project consisted of the construction of four and one-half miles of drainage ditch in the area of Jean Cote and Marie Reine. This ditch system carries half of the drainage water north to the Smoky River and the remaining half is carried south into existing drainage channels in the Municipal District of Smoky River. The project was completed under the supervision of Water Resources engineers during 1960; the government share of the cost being $3,500.

Ribstone Creek

Ribstone Creek, located in east-central Alberta, has a very flat gradient causing flood waters to overtop its banks, however, the flood waters do not cause damage but rather irrigate the fertile grass plains which border the creek. This being, basically, a beef producing area it naturally depends, to a large extent, on the hay produced on these plains. Thus the flood waters have great economic significance. Unfortunately, in recent years precipitation has been insufficient to produce an adequate flow of water resulting in below normal hay production.

The solution to this problem could conceivably be brought about by the eventual construction of the William Pearce Project. If Sullivan Lake is raised by its utilization as a reservoir, a controlled outflow into Ribstone Creek by a canal could supply the required irrigation water during periods of low runoff.

Cold Lake

Cold Lake is one of the many northern lakes that rose during the past year due to the unusually large amount of rainfall that occurred in this area of the province. The high level of the lake caused wave action to undermine the shoreline in the vicinity of the town which is located along about one mile and a quarter of the shoreline. Resulting damage was particularly severe in the vicinity of main street and near the hospital.

Plans and negotiations are presently underway to construct protective works under a fifty-fifty financial assistance agreement.

Manatokin Creek

This problem developed during 1960 as a result of a blockage in the outlet of Manatokin Lake. The blockage consisted of a semi-submerged mass of muskeg material extending over a distance of about 600 feet. Although the material was not completely blocking the creek it restricted the flow to the extent that eleven quarters sections of low lying land became inundated. Attempts were made to clear the blockage by blasting and by the use of grafting hooks. Both methods were found to be generally unsatisfactory. Because of the size and nature of the blockage, remedial measures are not easily undertaken. Investigations are continuing on this problem and it may become necessary to construct a new outlet channel to bypass the obstruction.

Peleck Lake

Peleck Lake has been a problem of long standing and considerable significance. During the summer of 1960 surveys were undertaken to determine the feasibility of lowering the level of the lake. It was found that only one outlet existed which drained into a second lake which was at the same elevation. The two lakes together act as a sump with no well defined outlet. When precipitation exceeds evaporation, seepage and other loses, the water level naturally rises. In years of high rainfall, such as was experienced in this area during 1960, the problem becomes extremely severe.

Town of Vimy

During the past year the Town of Vimy experienced difficulties as a result of an unusually high ground water table. A large number of basements were affected by seepage and many of the streets were weakened to the point that they would not support a parked vehicle. Although the problem is basically one of ground water, it is closely associated with surface runoff that acts as a source of supply to the ground water. Investigations of this problem are continuing and it may be necessary to construct both surface and subsurface intercepter drains.

Thunder Lake

The preliminary survey to determine the feasibility of providing Thunder Lake with an adequate outlet was undertaken during the summer of 1960. Thunder Lake is situated approximately 90 miles northwest of Edmonton and 14 miles west of Barrhead. The lake first came into prominence in 1950 when, at that time, certain works were constructed under the Water Stabilization Program to preserve the level of the lake.

Under this policy, a creek was diverted into Thunder Lake by means of a structure and a diversion canal. With the advent of an extremely wet cycle, commencing in 1952, it became increasingly evident that the outlet channel from Thunder lake was inadequate to cope with the inflow. The lake rose steadily until it reached a level that caused some flooding to adjacent hay meadows. Consequently, the diversion works were abandoned to resolve the flooding problem. The Water Resources Office is still quite conscious of the need of water conservation and that is the reason why this survey was undertaken. Thunder Lake has now become a resort spot for that area. It possesses excellent scenic qualities but has limited uses as it is stagnant with weedy beaches and undesirable aquatic life. The Parks Branch, Department of Lands and Forests, has established a Provincial Park on the shores of the lake and have subdivided an area into lots. An adequate outlet to this lake would serve the twofold purpose of conservation and recreation. From initial findings, it is physically possible to provide this outlet. An estimated cost to determine if this proposal is economically feasible has yet to be completed.

Other special investigations presently being undertaken include:

1. Kleskun Lake
2. Ferguson Lake
3. Saskatoon Lake
4. Hazelmere Drainage Scheme
5. Meadow Creek
6. La Glace Lake
7. Flooding at La Crete near Fort Vermilion

Proposed Subdivision Inspections

The addition of Section 94 to The Water Resources Act made the Water Resources Branch responsible for approving any proposed subdivision of lands in the vicinity of bodies of water. As a result of this new policy, approximately thirty-five inspections were carried out during 1960, a large number of which pertained to subdivision of lakeshore property for recreational purposes.

The benefits of such a policy will become more apparent in future years. In the past, lakebed or lakeshore property exposed by receding water level was sold or leased to private ownership. It is almost inevitable that a receding lake level is only a temporary situation. Sooner or later water levels will rise again and consequently any marginal lands on which development has been allowed during the low water period becomes flooded and suffers damage.

In carrying out inspections of proposed subdivisions, a careful study is made of past records and all available information concerning the behaviour of the lake or river to insure that any development in the vicinity of these waters will be permanently safe from the danger of floods barring, of course, the unforeseen and unpredictable extreme conditions which may occur once in a hundred years.

GROUNDWATER AND LAKE LEVELS

General

Precipitation is a major contributor to our groundwater recharge thus precipitation records help us to estimate the amount of groundwater replenishment. Generally, most portions of the province received slightly below long term average precipitation. One area to the north and east of Lac La Biche had everal inches above average while Empress in the Special Areas received several inches less than the average rainfall. The groundwater picture therefore seems good except in the east-central portion of the province.

Inspections

Approximately 143 field trips were undertaken for the purpose of investigating complaints, contacting water well drillers, taking lake levels and inspecting community water supplies. A preliminary survey was carried out in the general vicinity of the Special Areas with regard to community domestic water supply. It was found that a small percentage of the people living in the area do not have what could be considered a good water supply. Groundwater is a major contributor to the supply and there seems to be prospects of improving the underground sources, however, finances and a lack of geological information is hindering its development.

Water Well Drillers

The registration of water well drillers in the province hit an all time high of 189 this year. This represents an increase of four over the previous high of 185 recorded last year. The number of water well reports submitted by the drillers amounted to 1,005 which is a drop of 45 from 1959.

Lake Levels and Precipitation

Heavy precipitation on the Lac La Biche drainage basin resulted in a four foot rise in the lake over last year while Sullivan Lake, in east-central Alberta nearly dried up. Other lake levels remained relatively unchanged. The following list shows a comparison of median levels of a few of the major lakes during the past four years.

Lake	1957	1958	1959	1960
Gull	92.50	92.03	91.24	91.29
Sylvan	78.43	78.17	77.50	78.05
Cooking	97.50	97.00	96.63	96.58
Buffalo	87.26	86.16	85.54	87.60
Wabamun	71.79	71.20	71.10	71.08
Pigeon	100.79	100.48	100.00	100.00
Lac Ste Anne	97.49	97.07	97.26	97.57
Lac La Biche	96.43	96.18	97.03	100.55
Lesser Slave	93.15	93.10	90.68	90.17

Starting with Sylvan Lake, then Gull, Pigeon, Wabamun, La Nonne and Lesser Slave, the levels have been quite low. This was due, first, to the dry cycle in these areas and low precipitation. If the precipitation curve is followed it will be noted that all these lakes follow the precipitation curve of their basin. Another point to be noted is that July of 1960 was the warmest July on record since 1906 in the central area which increases the evaporation and is a much greater factor in controlling lake levels than any outlets. Fear has been expressed by a few cottagers that their lakes are fast disappearing. This fear is best answered by the fact that we have a number of low flat areas that are now dry but over a high cycle period will again have water in them whereas the resort lakes have been high and low since our earliest records but tend to remain somewhat stable.

Vermilion Reservoir

From an engineering standpoint, this reservoir was maintained at a higher level than deemed safe but still does not satisfy park requirements. If this reservoir is to become a park reservoir and operated at a fixed level, it is essential that a spillway be constructed large enough to allow inflow to pass without interference. This also entails construction of a larger bridge in the road below the structure.

DRAINAGE DISTRICTS

The total number of drainage districts within the province remains unchanged from a year ago. There were nine drainage districts and collectively they constituted a total area of 189,200 acres of which 45,647 acres received direct benefit. The only new development was the appointment of one of the Water Resources engineers as Official Trustee to administer the affairs of the Cygnet Drainage District.

PROJECTS

Heart River Project

The details and extent of this project were reported in previous annual reports. This year, work was undertaken to complete the second Heart River dam and replacement of the Winagami Lake outlet spillway structure. All canals and structures functioned satisfactorily for the year.

Some damage occurred to the Falher and Girouxville checks during spring runoff. This situation was remedied by the construction of adequate stilling basins below both structures. A concrete check and pumping gallery was installed at McLennan replacing the original timber structure which was inadequate. The last section of the open channel from Lake Winagami to McLennan was regraded. All remaining canal banks were trimmed and are in condition for grass seeding.

The completion of these works marked the end of an eleven year period during which work was carried out on this scheme. Negotiations are underway to have those portions of the project pertaining to the drainage and supply of domestic water to the various towns turned over to the municipality for future operations and maintenance.

Because of the below normal precipitation in the area over the past three years the flow in the Heart River has been drastically reduced and storage in the Heart River Reservoir is considerably below what would be desirable for effective operation of the project. To better evaluate this situation a helicopter inspection trip was made by three of the Water Resources engineers over the entire drainage basin of the Heart River. It was found that this basin was extremely dry and that it would take a considerable amount of rainfall to bring it back to a condition which has existed in former years. With the completion of construction of the second dam, however, facilities now exist whereby every drop of runoff water may be stored should such become necessary. Lack of flow in the river has had a secondary effect also on the level and condition of the water in Lake Winagami which has created an undesirable situation as far as the Winagami Provincial Park is concerned. Here again, however, with the completion of the Winagami outlet structure which is an automatic control, any water that it is possible to divert into Lake Winagami will be retained to provide better recreational facilities and to help insure an adequate supply of domestic water for the towns which rely on this source.

Pembina River Flood Control Project

Work on the Pembina River Flood Control Project during the summer of 1960 was limited to observation of existing cutoffs. Observing the development of constructed cutoffs is an important phase of the project as the data obtained is the basic factor in preparing plans for future work. Peak flows were again relatively low to test the full effectiveness of the cutoff, however, the continuation of dropping river levels and the sedimentation of old river meanders are encouraging signs of their success.

To those who are not familiar with the nature of this project, they are referred to the Anuual Reports of 1957, 1958 and 1959. Briefly, however, the Pembina River Flood Control Project is designed to prevent the river from spilling into its natural flood plain. The engineering action employed is known as "River Training" which primarily involves a co-ordinated system of eliminating exaggerated meander loops by means of a cutoff. The major zone of complaint is between Manola and Jarvie in the Westlock area and all work is confined to that area.

The season was again hampered by inclement weather which resulted in unfavourable working conditions. Above normal precipitation prevailed during the summer months. To indicate the abnormality it is reported that Pibroch, which is midway within the working area, received approximately twenty-five inches of precipitation commencing April first.

Two survey crews were assigned to obtain all the pertinent data which is necessary to record the development of existing cutoffs. One crew was a ground party which recorded all physiographical changes and the other a boat crew which, with the use of a survey boat, recorded all hydraulic considerations. The ground survey crew worked throughout the season while the boat crew was again transferred to lake survey when the river reached a low stage.

In November a contract was awarded for $29,000 for the construction of an additional cutoff. Work on this cutoff is presently in progress and when completed will be the fifth cutoff constructed.

Kleskun Hill Project

Details of the past history of the Kleskun Hill Project may be found in the previous annual reports. As in 1959, Water Resources men and equipment carried out the small amount of construction which remained to complete the project. This consisted of the construction of a timber drop structure between the formerly existing drop No. 1 and No. 3 which was built to replace the previous structure found unsatisfactory due to the difficult nature of the soil conditions. Other finishing work consisted of rip-rapping of structures, trimming of spoil banks and grass seeding operations.

The spring runoff in the area was relatively normal in the amount of discharge but lasted for a shorter duration of time. All the structures and works operated satisfactorily; the major test was given them not by the spring runoff but by the very heavy rains experienced in July. All structures were flowing to capacity, but, it was not necessary to divert water down the highway ditch which confirmed the intent of the design to handle relatively large quantities of water without resorting to the use of various safety factors incorporated in the project.

It is now felt that all construction problems have been overcome and the system as a whole will operate as intended.

East and West Prairie Rivers Project

For the background of the East and West Prairie Rivers Project the reader is referred to previous annual reports. This year the ground control surveys which began in 1958 were completed as were the topographic plans compiled from these surveys by the Technical Division of the Department of Lands and Forests.

Studies are presently underway to determine which of the various remedial proposals will be most economical and effective. A final report is being prepared showing cost estimates and benefits of each proposal.

An inspection trip was made by helicopter over much of the East-West Prairie Rivers basin. Numerous reports received concerning existing log jams in the headwaters of these rivers were verified or found to be false. An appraisal was made during this trip of the effectivenness of the timber clearing program along the banks of the West Prairie River which is being undertaken for the third consecutive year. The need for an extension of this program into the upper reaches of the drainage basin was also considered.

An additional fifteen miles of river bank is again being cleaned of logs and debris during the present winter months. This will complete about forty-five miles of river course that has been cleared of material which would be conducive to the formation of log jams.

William Pearce Project

The history and purpose of the William Pearce Scheme were reported in the 1959 Annual Report. This year surveys and investigations continued and with the exception of some additional dam site foundation drilling this is to be undertaken this winter, field surveys in the western portion of the project are virtually completed. Topographic plans being prepared by the Technical Division of the Department of Lands and Forests are near completion. A great deal of office study and analysis is now required and this aspect of the investigations is presently underway.

Manning Drainage Project

The Manning Drainage Project began in 1952 when Water Resources engineers laid out a drainage scheme for an area northeast of the Town of Manning. This was a farmer construced and operated project carried out in accordance with an overall plan as prepared by the Water Resources.

During the past years some difficulty was encountered in the lower reaches of the scheme with regard to an adequate outlet for the runoff water. A new canal was constructed during 1960 by the Water Resources Branch consisting of two miles of new ditch which bypassed the troublesome area and conveyed the drainage water in a more direct route to the Peace River. It is anticipated that this work will solve the problem and at the same time provide for additional lands in the upper reaches to be brought into the scheme.

Lac La Biche

In September Lac La Biche reached the highest water level ever recorded. The basic causes for this increase was, firstly, excessive precipitation within the Lac La Biche drainage basin and secondly, the capacity of the outflow channel, the Lac La Biche River, was not great enough to accommodate the inflow. The Owl River is the major tributary into the lake and actual discharge measurements showed that the inflow from the Owl River was four times as great as the outflow. This extremely high water level inundated the main highway and secondary roads leading to the Town of Lac La Biche and threatened the water and sewer installations. Positive action by the Department of Highways and the Water Resources Office minimized the major inconveniences to local residents. The Department of Highways reconstructed all inundated roads while the Water Resources Office extended financial and engineering assistance to the Town of Lac La Biche for protection works to the water and sewer installations. The Water Resources Office also initiated a weed cutting program to remove the heavy growth of weeks within the banks of Lac La Biche River in order to increase its capacity. One crew, with the use of a mechanical weed cutter supplied by the Department of Lands and Forests, worked for two months to accomplish this task. A complete survey of the Lac La Biche River was also undertaken and completed. In addition, a preliminary survey to determine the possibility of providing Lac La Biche with another outlet was carried out. This additional outlet would empty into the Beaver River but, according to the data obtained, it does not appear to be economically feasible. During the high water period an inspection was made by helicopter of the entire area to better appraise the cause, extent and duration of existing conditions.

Paddle River

The Paddle River, whose water shed covers an area of 930 square miles, is a major tributary to the Pembina River. Their confluence occurs in the Manola-Barrhead area which is in the flood zone of the Pembina. The severity of spring floods to the residents of the Paddle River Valley is as great as the floods to the Pembina River flood plain. Therefore the flooding problem along the banks of the Paddle River is interrelated with the Pembina flood control project. Before flood control measures can be undertaken within the Paddle River Valley the Pembina River Project would have to be advanced to a position where additional flood waters could be accommodated. However, preliminary surveys were initiated in 1958 to obtain the basic information necessary for future planning. No work was done in 1959 but work was resumed this season. Here again the only engineering method available to control future floods is by channel improvement and one survey crew was assigned to obtain all the necessary information.

Red Deer River at Sundre

The Red Deer River at Sundre is prone to periodic excessive high flood stages. In addition, this river when in flood carries one of the heaviest bed loads of any of our Alberta rivers. At Sundre this results in a tendency for the river to make drastic alterations in its course at the least provocation. This Office has, for some time, viewed with concern the possibility of the river moving its channels eastward thereby bypassing the highway bridge and severing the main highway into Sundre. This possibility has been further aggrevated over the years by the rather indiscriminate excavation of gravel pits along the river flats.

In the fall of this year surveys were conducted with a view to constructing some means whereby the river could be maintained in its present channel. As a result of these investigations a groyne was built about one-half mile upstream from the highway bridge. This groyne consists of a dyke constructed from the natural gravels of the area with a rock reinforced nose extending into the river channel. A second such structure is being contemplated farther upstream but at present the need for such has not been definitely determined. This constructed groyne is not intended to prevent flooding of lands adjacent to the river channel. It is essentially to prevent the possibility of the entire river altering its course. The effectiveness of this structure will be observed with interest during the spring floods as it is fully realized that additional similar structures may be required before an effective control can be established.

HYDROLOGY

Again this year the Water Resources District Office at Calgary continued to work closely with the Federal Water Resources Branch. In addition to the normal station repair and maintenance, the Federal Water Resources Branch established eleven new hydrometric gauging stations in Alberta during the year. Four of these stations were established at the request of the Alberta Water Resources Branch. These are the Little Red Deer River station near its mouth, the Wapiti River station near Grande Prairie, the Athabasca River station near Whitecourt and the Peigan Creek gauging installation near Pakowki Road.

Federal Government gauging stations established in 1960 were located on Walburger Coulee downstream from the P.F.R.A. diversion canal which supplies the Spangler Project in Saskatchewan, the Peace River at Dunvegan Bridge, The Peace River near Carcajou, the Peace River near Fort Vermilion, the Peace River at the fifth meridian, the Clearwater River at the upper wing dam and the Athabasca River at Chipewyan.

General hydrology studies continued along the same pattern as described in some detail in the 1959 Annual Report with the exception that a greater concentration of effort was placed on those waters associated with the William Pearce Scheme. The lack of stream flow records on these streams make it essential that considerable hydrologic investigations be undertaken in order to provide adequate information for the design of dams, spillways and other works on this scheme.

Lake Bed Surveys

The program of lake bed and reservoir bed surveys was continued in the fall of the year. In the past two years these surveys have been concentrated in the southern portion of Alberta while this year the area of attention was shifted to central Alberta. Sonic surveys are made of these lakes from which contour plans are prepared of the lake bottom. These plans are then incorporated into a general report of the lake which will contain all available information about the lake, its history, water condition, inlets and outlets and all such facts that may be relevant and of interest both to the Department and to the general public.

The following are the lakes which were surveyed this year:

1. Lac La Biche
2. Wabamun Lake
3. Spring Lake (Cottage)
4. Gull Lake
5. Sylvan Lake
6. Battle Lake
7. Wakamao Lake

Snow Surveys

Snow surveys within the Wabash Creek, the Paddle River and the Pembina River watersheds were continued in 1960. Briefly, the purpose of this type of survey is to determine a correlation between the annual snow fall and subsequent runoff in the spring. A large part of the annual flow in Alberta streams and river occurs in the spring and results primarily from snow melt. Information obtained from these surveys is important in the design of open channel and other hydraulic structures.

Water Power

Calgary Power Ltd. has installed additional units, one at the Spray Plant of 50,000 kilowatts, which doubles the capacity of that plant and will be in operation by the end of 1960, and one unit at the Rundle Plant with a capacity of 30,000 kilowatts which will bring the total capacity of that plant to 47,000 kilowatts.

Also in the Water Power program, the Provincial Government has concluded an agreement with Calgary Power Ltd. for the Big Bend Power Development on the Brazeau River. The Big Bend Project, now under construction, will have a full supply level of 3,155 feet and a low supply level of 3,102.5 feet. Live storage volume will be 284,000 acres feet. This storage would not normally be available until the fall of 1964 when the first generating unit is scheduled for operation. However, this project is to serve the dual purpose of producing power and increasing the winter flow in the North Saskatchewan so as to permit further industrial development in the Edmonton area. Arrangements are being made so that some water can be stored for release during each of the three winters preceding the plant commissioning. During these earlier years water will be released from the reservoir through the diversion conduits and a low supply level of 3,020 is possible. During the latter two winters 300,000 acre feet of storage can therefore be stored and released, while half this amount can be made available in the first winter. Storage released in the year preceding power generation will be confined to the periods during which the river flow at Edmonton is low and perhaps only to that period of time during which the river is ice covered.

The following tabulation sets down our present thoughts on the schedule for filling the Brazeau reservoir:

Year	Reserv. begins filled on	Reserv. will be filled by	Reserv. will be emptied by	Storage Vol. in ac. ft.	
				to be filled	to be released
1961-62	Sept. 1	Dec. 1	Apr. 1	160,000	150,000
1962-63	July 1	Dec. 1	Apr. 1	300,000	300,000
1963-64	July 1	Dec. 1	Apr. 1	300,000	300,000
1964-65	June 25	Oct. 7	Apr. 1	434,000	284,000
1965-66	July 15	Oct. 7	Apr. 1	284,000	284,000
1966-67	July 15	Oct. 7	Apr. 1	284,000	284,000
1967-68	July 15	Oct. 7	Apr. 1	284,000	284,000

It is estimated that in a low year the total natural flow at the Brazeau storage reservoir will be approximately 705,000 acre feet during the filling period (Apr. 29-Oct. 7) and 150,000 acre feet during and drawdown period (Oct. 8-Apr. 28). In an average year the corresponding figures are 1,150,000 acre feet and 220,000 acre feet. Because the storage volume being provided in the present development is considerably less than even the low year summer flow, it is difficult to estimate the distribution of outflows during the summer. In general, however, it is expected that the works will be allowed to discharge freely during the early part of the summer, maintaining the reservoir at, or near, its low supply level. Filling would begin on the dates given in the tabulation above and after that date all of the flow in a minimum year would be retained while some discharge would still occur during higher years. As noted above, discharges during the winters before power generation are difficult to estimate.

The following tabulation gives the estimate of monthly releases from the reservoir during the years 1964-65 through 1967-68 and include both stored water and natural flow.

Month	Outflow from Brazeau Reservoir in cfs Months	
	in an Average Year	in a Low Year
October	910*	720*
November	1,020	950
December	1,300	1,220
January	1,600	1,550
February	1,200	1,130
March	1,100	1,050
April	1,290*	390*

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*Natural Flow Only.

The estimates of Brazeau River flow are based on a correlation with flows measured on the North Saskatchewan River at Rocky Mountain House and at Edmonton. A gauging station near the site of the Brazeau storage dam has been maintained since the late fall of 1956. Daily flows are available during the open water period from an automatic recorder but winter flows are approximated from spot measurements taken at three or four week intervals.

The correlations are based on total flows during the filling and drawdown periods and the relationships which have been derived are given below:

Q_{BR}—Quantity of water in cfs days, Brazeau River at Big Bend.
Q_{RMH}—Quantity of water in cfs days, North Saskatchewan River at Rocky Mountain House.
Q_{EDM}—Quantity of water in cfs days, North Saskatchewan River at Edmonton.

Total Inflow: Summer Filling Period = 162 days

29 April to 7 October inclusive

$$Q_{BR} = 0.38\ Q_{RMH}$$

or $Q_{BR} = 0.18\ Q_{EDM} + 163{,}000$ (*)

Equation (*) derived from ($Q_{RMH} = 0.48\ Q_{EDM} + 430{,}000$)

Total Inflow: Winter Depletion Period = 175 days

8 October to 31 March inclusive

$$Q_{BR} = 0.42\ Q_{RMH}$$

or $Q_{BR} = 0.28\ Q_{EDM}$

Total Inflow: Month of April = 28 days

1 April to 28 April inclusive

$$Q_{BR} = 0.38\ Q_{RMH}$$

or $Q_{BR} = 0.19\ Q_{EDM}$

During the early part of the summer the unit runoff for the Brazeau is as high or higher than that of the North Saskatchewan at Rocky Mountain House. Later in the summer, however, the Brazeau unit runoff tapers off more quickly than that of the North Saskatchewan at Rocky Mountain House. The relationships given above cannot therefore be used to compute weekly or daily flows in the filling period. Where these were required for studies of flood routing a series of flow coefficients were used based on a comparison of cumulative runoff for the Brazeau and North Saskatchewan at Rocky Mountain House. These coefficients are as follows:

Week Beginning	C
April 29	.836
May 6	.712
13	.648
20	.590
28	.552
June 4	.527
11	.503
18	.484
25	.468
July 2	.454
9	.443
16	.430
23	.419
30	.408
Aug. 6	.403
13	.393
20	.387
27	.381
Sept. 8	.381
Oct. 1	.381

To estimate the cumulative inflow to the Brazeau, the cumulative inflow of the North Saskatchewan at Rocky Mountain House to the end of the week beginning with the date given in the tabulation is multiplied by the corresponding coefficient. Weekly flows can then be determined by subtraction.

CALGARY DISTRICT OFFICE

The Calgary District Office reported generally dry conditions and water shortages in the area during 1960. Even in the Foothills area west of Calgary this condition was apparent. In the last few years the beaver have been very prolific and have, in some cases, caused problems. Generally, his presence on a stream and the associated beaver dams prolonged the runoff period, reduced flood peaks and generally improved the regulation and use of water in the stream.

Irrigation projects on the Bow River received adequate supplies of water primarily due to the regulation afforded by power reservoirs upstream. Only one minor complaint was received and this came late in the year after the official irrigation season was over.

A naturally well regulated runoff on the Highwood River this year prevented any problems from arising. A survey has, nevertheless, been started into all aspects of the river protection works in the Highwood River area to determine whether some reasonable and permanent solution can be found to this almost perennial problem.

The repair work to the Little Bow canal system headgates which was completed in the fall of 1959 has proved to be entirely satisfactory.

The erosion protection works in the Cluny area have now been completed. These works functioned satisfactorily during the runoff period and no problems were encountered. It is anticipated that future spring runoff in the area can be held in control to prevent further damage.

The P.F.R.A. small projects division constructed approximately 450 dugouts and small projects during the 1960 season. The demand for new projects has been extremely high because of the dry conditions over the last two year and the area is suffering, in many cases, from a shortage of stockwater.

An indication of the water problem in the area was to be found in the dispute between the Cessford irrigators and the stockmen around East Berry Reservoir. The former wanted the water let down for irrigation; the latter wanted it to remain in the reservoir for stock use. An amicable solution was reached whereby each group would get part of the water stored in the reservoir. As it was, the irrigators had only sufficient water for one short irrigation period during the year. In other areas various measures are being taken to off-set the present and future threat of water shortages. The Towns of Hanna and Consort are still studying the problem of a reliable source of domestic water.

No meetings of the Special Advisory Committee on water took place, however, numerous discussions were held with the Special Areas regarding water problems. In this regard the Atlee-Buffalo community pasture was toured to investigate possible reservoir sites. Several trips were made by the Calgary District Engineer into the mountainous regions to investigate potential upstream storage sites. Sites were located on the Little Red Deer River, Grease Creek, Jumping Pound Creek, Elbow River, Sheep River and Highwood River. These will receive further investigational work as time permits.

Surveys were completed of the river erosion problem on the Sheep River near Millarville for the Municipal District of Foothills.

This included the survey of possible remedial measures including the possibility of diverting the river.

Additional survey work was undertaken to establish geodetic elevations on the various crest stage gauges located throughout the area. Surveys were also completed and plans prepared for several small projects.

Sonic surveys were carried out no two occasions in connection with the constructed ice trap on the Bow River below the Louise Bridge in Calgary. These surveys are part of a program of study to determine the rate at which such ice traps may become filled with sediment or bedload and will also provide information as to the natural bedload of the Bow River.

During the year cataloguing was completed on the 9,000 plans and 2,200 files which have been taken over from the Federal Water Resources Office. These plans and files are now being prepared for shipment to the Edmonton office for permanent filing. During the year, over 150 requests from outside agencies for information relating to water problems were received by the Calgary Office. Inspections and research were necessary in many cases to provide adequate answers to the questions received.

In June a meeting was held in Lethbridge by the Southwest Alberta Development Association for the purpose of considering the available supplies of water in the Oldman River and its relationship with industrial development in the Lethbridge area. The Calgary District Engineer prepared a comprehensive report on a study of the water in the Oldman River and the effects on the flow in the river by the construction of the proposed Gap Site Reservoir. This report was presented to the meeting and was received with due compliments.

A report was also compiled for the Prairie Provinces Water Board on the effects of vegetation on the runoff in Alberta. This report has been submitted to the Edmonton Office for scrutiny and approval.

A third report was prepared and presented to a meeting of the East Central Chamber of Commerce held at Consort pertaining to the William Pearce Project, its aims, objectives and engineering features.

The erosion problem at Drumheller received considerable attention. The Red Deer River is still in its meander development stage and in its wanderings has endangered property, both in Medlandvale and Newcastle. This is a very complex problem and will require considerable study. Construction of the headworks of the William Pearce Project could have a significant benefit with regard to this problem. A preliminary report has been prepared on this study.

During the year requests for investigations were received from the Department of Highways, the Department of Fisheries and the Eastern Rockies Conservation Board as well as the Glenbow Foundation, which is still collecting information on the early history of irrigation in Alberta. In addition, information was requested from eight towns concerning the improvement of domestic water supplies for the remedy of domestic water shortages.

Considerable attention was given to the prevention of gravel washing operations, in the Calgary area, from returning the silt washings to the river. Settling basins were required so that the water returning to the river was in virtually the same condition as when diverted.

Early in the year, the Calgary District Engineer was appointed to the Steering Committee on Watershed Research. This committee was organized to advise a second Committee on Watershed Research of the type and scope of program required to satisfy the need for information on the eastern slopes of the Rockies. The committee held two meetings and at that time outlined a program of research needs in the area as well as a preliminary outline of the program required to satisfy these needs. Each organization cooperating in the program has set out the work they are prepared to undertake during the next fiscal year.

During October a field trip was made by the District Engineer to various forestry research stations in the northwest section of the United States in order to obtain a better understanding of the work that has been accomplished in the States, the mistakes that have been made, the research work needed and administrative problems which may be encountered in setting up a watershed program in Alberta. This trip was most beneficial in assisting in the development of a program of basic research for this province.

LETHBRIDGE DISTRICT OFFICE

During 1960, one hundred and twenty inspections were made pertaining to problems of erosion, flooding, seepage, water supply and water rights, etc. by the Lethbridge District Engineer. These included inspections of river work undertaken in the Crowsnest Pass area and at Milk River as well as inspections of construction of the Antelope Coulee crossing in the Eastern Irrigation District which was partly financed by the Alberta Government. Inspections were also carried out in connection with supervision of the main canal for the Mountain View, Leavitt and Aetna Irrigation Districts.

In the Crowsnest Pass, rip-rap work was completed on the lower 600 feet of Nez Perce Creek in East Colemen, on 1,600 feet of the Crowsnest River in West Blairmore and 400 feet of Drum Creek in Hillcrest. In East Coleman some rip-rap work done in 1957 was reinforced because the rock available from highway cuts in 1960 was much more durable than that which was obtained previously. Since the autumn of 1957, the following is a summary of the work done in the Crowsnest Pass:

1. Three and one-half miles of channel improvement on the Crowsnest River.
2. Two miles of bank-rip-rapping.
3. The diversion of Glacier Creek to Island Lake to improve its water supply.
4. The consolidation of Allison Creek into one channel in the lower reaches for better fish propagation.
5. Dredging and rip-rapping of the lower 600 feet of Nez Perce Creek.
6. The dredging of 1,000 feet of Lyons Creek.
7. The rip-rapping of 2,000 feet of creek bank.
8. The rip-rapping of 400 feet of Drum Creek.

These works cover all critical reaches in the built up areas of the Crowsnest Pass where erosion has caused or threatened damage in the past. The danger of floods overtopping the banks has been reduced by channel improvements but not completely eliminated. Summer flood should be contained in all but the most extreme cases but ice jams can still be a problem. Because of the pervious material in bed and banks and shifting bed deposits, seepage causing flooded basements on adjacent property has not been eliminated and probably cannot be stopped without an exorbitant expenditure on construction maintenance.

On the Milk River, some erosion control work was done to protect the lands of a farm on the NE 15-2-16-W4M. A rip-rap berm was constructed along 300 feet of river and contains about 700 cubic yards of pit run gravel and 300 cubic yards of field stones. This berm was built to halt erosion and to stabilize the bank slope near threatened buildings.

Watermastering services were also provided on Pakowki Lake tributary basin and on Sage Creek during the last week in March.

IRRIGATION

General

The lack of precipitation in southern Alberta during 1960 resulted in heavy demands for irrigation water. In the St. Mary and Milk Rivers Development a greater number of canals than ever before were taxed to maximum capacity. An increasing number of farmers, formerly dubious about the benefits of irrigation, became ardent users of irrigation water. Toward the fall of the year the general area was drier than has been experienced for many years. Fall irrigation continued well into October in an attempt to build up soil moisture for spring seeding operations. Although the supply of irrigation water was at no time in short supply, the St. Mary's dam reservoir and the Ridge reservoir were virtually exhausted. Other reservoirs, however, were sufficiently replenished during the fall to ensure against water shortages should 1961 be another dry year.

Work was completed on the construction of the Antelope Coulee syphon replacement in the Eastern Irrigation District. The construction of these works was carried out by the P.F.R.A. and also assisted financially by the Provincial Government. The Eastern Irrigation District also embarked upon an extended program of repairs to the Brooks aqueduct and major repairs were also carried out on other larger structures in the District. Consideration was given to major maintenance work on the Bassano Dam. This structure has now reached the point where further delays in carrying out this maintenance could result in very costly future repairs. A new type of experimental gate lift was installed on one bay of the Bassano Dam with the view that, if satisfactory, others will be placed to facilitate better control of these works.

The Leavitt-Aetna Irrigation Districts, formerly operated under an official trust, were this year formed into self-governing bodies with their own Board of Trustees.

During the year, a committee was appointed under the chairmanship of Mr. John Mould, of the Water Resources Branch, to investigate and clarify the position of the Lethbridge-Coaldale Irrigation System with respect to content and finance and to formulate recommended policies to be followed with regard to this area. A number of meetings were held for the purpose of gathering information from various parties concerned and a report has been submitted on the findings of this committee.

The Irrigation Planning Board continued its consideration of potential future irrigation development and expansion. Various field trips and inspections were made by the committee and various studies and reports were compiled during the year.

A meeting of the Co-ordinating Committee was held in February 1960 at which a review of the present situation with regard to irrigation development was considered. A proposed procedure of investigation and design for the development of irrigation projects was presented and adopted by the committee. The present status of investigation on the St. Mary and Milk Rivers Development Highline Canal, the Bow River Development Sundial-Retlaw system, the Taber Irrigation District Extension and Foremost area development were reviewed and the future co-ordination of these investigations was programmed.

St. Mary and Milk Rivers Development

Construction on the St. Mary and Milk Rivers Development in 1960 was confined principally to the building of drains and the lining of irrigation distribution canals. This work was carried out under the direction of "The Departmental Committee Appointed to Deal with Seepage, Alkali and Drainage Problems" in the S.M.R.D. and B.R.D. In all, about twelve main drain works were completed with the exception of leveling the spoil banks in some cases. One of these, the East Horsefly Drain and Spur, was constructed on contract awarded to a construction firm in 1959. All other drainage construction was carried out by Water Resources personnel and equipment, or equipment on rental to Water Resources. In addition to the excavation of the drain itself, this work includes the installation of crossings, the placing of drain pipes to accommodate surface runoff, the levelling of waste piles and, in some cases, the fencing of the drain. Some of the work on these drains consisted of improving channels formerly constructed to ensure more effective operation.

In addition to the construction of open drains, some tile drain installations were undertaken. The first such drain to be installed was done under contract and consisted of 1,900 lineal feet of eight inch concrete tile.

A second tile installation contract was awarded in 1960 known as the Big Bend Main Canal East and West Drainage. These works included two separate lines, the one extending from highway No. 36 south to the main canal and the other to the open drain on the west side of the main canal. This contract consisted of the installation of 10,615 feet of tile together with fifteen inspection wells.

An additional three miles of excavation has been undertaken in preparation for later installation of tile drains.

Approximately 36,700 lineal feet of plastic lining was laid during the year. This was carried out with some difficulty because of persistent winds during the spring and fall. The amount and width of the lining placed is shown below:

1,200 ft. of 18 ft. width
10,400 ft. of 20 ft. width
12,000 ft. of 22 ft. width
6,200 ft. of 24 ft. width
5,600 ft. of 28 ft. width
1,300 ft. of 32 ft. width

These lining works were carried out in the following districts:

Big Bend District
Lateral "M" and "K"
N.E. 24 and S.E. 25-10-16-W4M
South Horsefly Area
East Horsefly and Fincastle Area
South Grassy Lake
Bow Island—Lateral "10B" in which about 500 feet has been completed out of a proposed 3,000 feet
Medicine Hat Area

Approximately four miles of ditch have been prepared for lining operations in the spring and an additional two miles is programmed for lining in the Fincastle, Purple Springs and Grassy Lake areas.

Other works undertaken during the year include enlargement of the northeast lateral from Chin headgates to the reservoirs ten miles north of Coaldale to provide a more adequate supply of water to the Cameron Ranch tract.

About two miles of lateral extension was carried out, part of this work including a three-quarter mile extension ditch to deliver water to the new community pasture developed by the Department of Lands and Forests in Township 10, Range 15, west of the fourth meridian.

The Barnwell fill structure was completed and is now in condition to adequately supply sufficient water from the from the fill to Lateral No. 3.

In the Raymond District, alterations were made to drainage ditches and provision installed to handle various existing flood conditions.

Timber barricades were construced around the piers of the Chin Bridge to prevent boats and water skiers from colliding with cross beams on the bridge piers. This reservoir has become a prominent recreational area and during the summer a great many boats make use of this expanse of water.

During the year, Water Resources crews cast numerous precast drop and check structures consisting of thirty-five different sizes from three to six foot openings. Several new types of precast structures were also built such as turnouts, check drops and flapgate headwalls for use on the S.M.R.D.

Considerable work was also done in placing checks and drops and enlarging ditches for the community pasture at Seven Persons. General painting of facilities at the Water Resources headquarters at Grassy Lake and the extension of the sewage disposal field was also completed. Rip-rapping, fencing, construction of Texas gates, execavation of stock ponds to replace farm water storage destroyed by construction of drainage ditches, construction of drainage inlets, elevation of canal banks to eliminate flooding, etc. were also carried out during the year.

Bow River Development

In 1960 a construction contract was let for the construction of sub-drains in distributaries A, B and C consisting of twenty-four miles of canal. The contract which provided for the dirt excavation only was completed in November. Other pertinent structures of the work such as drainage inlets, farm crossings, lateral crossings, railway crossings and all the drop structures were constructed by Water Resources personnel and equipment. Additional tributary drains to this drain canal will be constructed to serve individual areas as the need arises.

Work was continued on tail-end ditches under the policy that all laterals over one mile long to service more than two parcels should have wasteways. These wasteway ditches are usually short and steep and require the installation of numerous drops to prevent erosion. It has been found that this work can be carried out more efficiently and economically by our own stall and equipment than to award it to a general contractor. Other construction work carried out included the installation of forty-two Texas gates, the building of dykes on the border of drain water pondage areas, the construction of four miles of drain ditch, the placing of 1,480 feet of culvert pipe, the construction of sixty-three timber and rip-rap drop structures, the installation of eight pipe delivery and wasteway structures, the placing and grouting of several hundred yards of rip-rap, the installation of drain flap gates and the decking of farm crossings. Improvement work was carried out on the headgates of the Lomond Lateral and repair work was carried out on the structures on Lateral "G" necessitated by some damage incurred during the priming operations.

In addition, top soil was placed and grassing and landscaping operations carried out on four ditchrider locations, general finishing and painting on garages and other buildings at ditchrider establishments was completed.

Surveys associated with construction and investigation required for future planning of drainage works was also undertaken. This involved the following:

Topographic surveys—23,200 acres
Transit lines — 650 miles
Cross-section — 56 miles
Bench Mark Level — 400 miles
Profile levels — 56 miles

PLANNING FOR THE FUTURE

New topographic maps issued by the Department of Mines and Technical Surveys have revealed new storage sites in Alberta and have given supporting data to other storage sites and river diversion possibilities that were previously known. Possible river diversions in Alberta are as follows:

1. Diversion of the Clearwater (North Sask.) near Rocky Mountain House to the Raven River which is tributary to the Red Deer (South Sask.).
2. Diversion of the upper part of the Pembina River (MacKenzie Basin) to the Brazeau River dam of Calgary Power Ltd. A fairly high dam is required in a narrow gorge in Section 30, Township 48, Range 14, west of the Fifth Meridian, on the Pembina to divert the stream into Dismal Creek which, in turn, is diverted by a dam into the Brazeau head pond.
3. Diversion of the McLeod River (Mackenzie) near Edson in Township 52, Range 18, west of the Fifth Meridian by a canal to the North Saskatchewan River (Nelson).

4. Diversion of the Little Smoky River (Peace River) in Township 60, Range 20, west of the Fifth Meridian to the Athabaska.

The reservoir sites on the North Saskatchewan are all west of the City of Edmonton.

(1) **Carvell Site**
Sec. 30, Twp. 50, Rge. 2, W. 5 meridian
Formation—clay shale
Elevation of River—2,157
F.S.L. of Dam—2,300
Storage capacity (contour maps)—1,550,000 ac. ft.
Length of dam on crest—1,400 ft.
Height—150 ft.
Excellent reservoir—foundation poor.

(2) **Tomahawk Site**
Sec. 15, Twp. 50, Rge. 6, W. 5 Meridian
Paskapoo Sandstone and Blue Shale
Elevation of river—2,334
Full supply of reservoir—2,480
Storage capacity from contours—825,000 ac. ft.
Height of dam—150 ft.
Length of dam—1,600 ft.
Location on big loop in river
Good spillway layout

(3) **Rocky Rapids Site** (near Drayton Valley)
Sec. 33, Twp. 50, Rge. 7, W. 5 Meridian
Paskapoo Sandstone—Blue Shale
River elevation—2,480
Reservoir elevation—2,650
Capacity—800,000 ac. ft. (est.)
Height of dam—200 ft.
Length of dam—1,600 ft.
Good spillway layout

(4) **Brazeau Junction (Forks) Site**
Sec. 26, Twp. 45, Rge. 9, W. 5 Meridian
Paskapoo Sandstone
River elevation—2,650 (est.)
F.S.L.—2,800 (est.)
Estimated storage—500,000 ac. ft.
Length of dam—1,600 ft.
Height od dam—150 ft.

(5) **"Loop" Site**
Sec. 24, Twp. 44, Rge. 9, W. 5 Meridian
Paskapoo Sandstone Foundation
River elevation—2,800 (est.)
F.S.L.—2,900 (est.)
Storage—400,000 ac. ft.
Length of dam—1,400 ft.
Height of dam—100 ft.
Good spillway layout

(6) **Baptiste Site** (This may overlap the Loop Site)
Sec. 22, Twp. 43, Rge. 8, W. 5 Meridian
Paskapoo Sandstone
Elevation of River—2,900 (est.)
F.S.L.—3,050 (est.)
Length of dam—1,400 ft.

Height of dam—150 ft.
Storage—400,000 ac. ft. (est.)

(7) **Alexo Site** (very little data)
Sec. 22, Twp. 40, Rge. 13, W. 5 Meridian
Sandstone foundation
River elevation—3,690
F.S.L.—3,790
Height of dam—100 ft.
Length of dam—1,000 ft.

(8) **Gap Site**
Sec. 36, Twp. 39, Rge. 14, W. 5 Meridian
Borings indicate poor plastic clay and quick sand
River elevation—3,790
F.S.L.—4,090
Height of dam—300 ft.
Length of dam—1,800 ft.
Storage capacity—1,400,000 ac. ft.

(9) **Tershishner Site**
Sec. 34, Twp. 38, Rge. 17, W. 5 Meridian
Sandstone foundation with a deep crevice filled with indurated gravel
River elevation—4,100
F.S.L.—4,300
Length of dam—700 ft.
Height of dam—200 ft.
Storage capacity—800,000 ac. ft.
Very narrow cross-section
Good spillway layout

(10) **Waterfowl Lakes Storage**
In National Park—could not be developed

(11) **Glacier Lake Storage**
In National Park—could not be developed

(12) **Brazeau River Reservoir** (Calgary Power Ltd. under construction)
Twps. 46 and 47, Rges. 11 and 12, W. 5 Meridian
Storage at F.S.L. 3,150 is 325,000 ac. ft.
" " " 3,200 is 930,000 ac. ft.

(13) **Clearwater River** (Sask.)
Two sites being studied know as "Gap" and "Idlewylde" sites

Miscellaneous proposals are as follows:

(1) Athabaska-Berland River Hydro Possibility.

The nucleus of this development would be the old Image Rock Site on the Athabaska (5-58-20-5). Immediately north of this site there is a site on the Berland (8-58-20-5) which will divert water released from the Berland storage dam (3-58-22-5) into the Image Rock headpond. The estimated capacity of the Berland storage dam is 800,000 acre feet and is believed to be a very favorable site. There are other sites on the Berland, the Wildhay and Athabaska Rivers that could round out the picture and in this connection reference is made to the Gooseneck Site on the Athabaska (23-55-22-5).

(2) Smoky River Hydro Sites.

There are some very deep gorges on the Smoky River near the junction of that river with the Kakwa (Twp. 64, Rge. 3, W. 6).

These gorges are about 500 feet deep and indicate the possibility of high head projects in that general area. The data on these prosposals is sketchy.

(3) Possible Gravity Pipeline.

A pipeline carrying about 50 c.f.s. (approx. 27 million gallons per day) for domestic purposes in the East Central area would seem to merit some study. Reference is made to a possible route from the end of the west branch canal of the Western Irrigation District near Irricana (Elev. 3,200) to a summit near Hanna (Elev. 2,800). The pipeline would be 60 miles in length and a proposed diameter of the prestressed concrete cylinder pipe would be 48 inches. The pipeline would deliver enough water to satisfy the domestic requirements of 500,000 people and would cost about ten million dollars.

(4) McLeod River (Athabaska).
Storage site both on and off the stream in Twp. 51, Rge. 22, W. 5 M.

(5) Gap Site on Oldman River in Sec. 32, Twp. 10, Rge. 3, W. 5 M.
P.F.R.A. completed survey and now taking borings.

It should be noted that more investigation is required on many of the sites and proposals listed above. Some of the sites are known to be in unfavorable clay and clay shale formations. In some instances the water supply is known to be inadequate. Many of the sites will not be available as there are oil and gas reservations involved; in some instances oil wells have been drilled in the river valley lands. The problem will be to determine when the development of upstream storage is required. Reservations have been placed against sale of any Crown lands on the sites. The only immediate need for upstream development would be to augment winter flow for downstream hydro projects in Saskachewan and Manitoba.

There are three downstream hydro projects now under construction in Saskatchewan and Manitoba but several more are being planned. There can be little doubt that any upstream storage sites that are built in Alberta will greatly benefit the hydro development downstream. Generally speaking, the operation of upstream storage will serve several beneficial purposes at the same time but the exact amount of releases could create problems. For example, Alberta might be asked to use some of the reservoirs as hold-over storage from one year to the next. This would defeat the purposes of flood control, domestic use and pollution abatement. In years of drought the conflicts in use would be intensified. Occasionally there is some conflict between upstream hydro (Calgary Power) and irrigation projects on the Bow River in Alberta but we have had cooperation in settling these relatively minor problems.

In the case of the Saskatchewan River it is felt that the use of water for producing food for domestic use and industry must come first. We must also bear in mind that there are alternative methods for producing power and in the not too distant future the use of nuclear energy will be widespread.

Retirement of P. M. Sauder

On December 31, 1960 Mr. Sauder ended a long and distinguished career as a Professional Engineer and Agriculturist. A man of unswerving ideals, Mr. Sauder may be said to have given his life to bring water to dry prairie lands of Western Canada. The fruits of his long years of endeavour now lie all about him.

In 1904 Mr. Sauder began his career on the staff of the Department of the Interior, Federal Government, in charge of topographical surveys. From 1906 to 1909 he served as Inspecting Engineer and from 1909 to 1920 as Chief Hydrometric Engineer for Alberta and Saskatchewan. He was appointed Commissioner of Irrigation in the latter part of this period. In 1920 he joined the Lethbridge Northern Irrigation District and after playing a leading role in the building of the project he later became the Manager. During this period he became familiar with the difficulties facing the farmers in adapting to irrigation farming.

From 1940 to 1944 Mr. Sauder was Director of Water Resources for the Province of Alberta and during this time helped to formulate plans for extensive post-war irrigation and water conservation projects. From 1944 to 1950 he was General Manager of the Western Irrigation District at Strathmore and was responsible for re-building this ailing project into a live organization.

From 1946 to 1960 Mr. Sauder was Manager of the St. Mary and Milk Rivers Development. This project embodied the old Alberta Railway and Irrigation Company of the C.P.R. as well as several other irrigable tracts into one large Crown Corporation. He was later made Manager and Colonization Manager of the West Block of the Bow River Development.

In spite of the load of administrative work that "P.M." had to do he still found time to further the work of the Engineering Institute of Canada and the Association of Professional Engineers of Alberta.

Although Mr. Sauder has officially retired we expect he will be available to give counsel in the furthering of the work he loves so well.

Picture taken in 1960 of Chester S. Clendenning—Manager of the Lethbridge Northern I.D., George S. Brown (Retired Irrigation Consultant) and P. M. Sauder (Manager of the S.M.R.D.).

Report of the Colonization Manager

for the

ST. MARY AND MILK RIVERS DEVELOPMENT
BOW RIVER DEVELOPMENT

and the

LETHBRIDGE NORTHERN IRRIGATION DISTRICT

C. J. McAndrews, St. Mary and Milk Rivers Development Colonization Manager
C. J. McAndrews, Bow River Development Colonization Manager
P. M. Sauder, Lethbridge Northern Colonization Manager
D. G. Harrington, Supervisor of Land Development
L. D. M. Sadler, Drainage Investigator
G. L. Steed, Land Classification Specialist
N. S. Thomson, District Irrigationist
V. B. Taylor, District Irrigationist
S. Noreika, Chief Techician
H. Thiessen, Assistant Drainage Investigator

The history of the St. Mary and Milk Rivers Development has been recorded in the Annual Report for 1955, and the history of the Land Development Service and its amalgamation under the Colonization Branch is contained in the Annual Report for 1959. This report will, therefore, be confined primarily to the Colonization business carried on during the year 1960.

The changes in policy in the Colonization Branch during the past year were:

(1) The Government is prepared to grant title to settlers, the Veterans Land Act Administration and the Farm Credit Corporation, after all payments on the Land Purchase Contract, Water Agreement and Land Levelling account have been made in full in order to facilitate financial assistance to the settler by the Veterans Land Act Administration, or Farm Credit Corporation. A restrictive agreement will be registered against such land for the remainder of the ten-year period, to prevent transfer or lease of the land except with the prior consent of the Colonization Manager.

(2) The Government is prepared to extend the duration of the Land Purchase Agreement to twenty (20) years, providing that the minimum annual payment on the principal of each agreement is not less than Two Hundred Dollars ($200.00).

(3) The Government has increased the allotment for land development to a maximum of $6,000.00, the first $3,200.00 to continue to bear interest at the rate of 3½%; and the amount over and above $3,200 to bear interest at the rate of 6%.

The Colonization Manager continued to serve as chairman for both the Colonization Manager Advisory and Drainage Committees, and as a member of the Irrigation Planning Board, the Coordinating Committees for the St. Mary and Milk Rivers and Bow River Developments ,and more recently as a member of the Committee to make certain recommendations on the proposed Irrigation District in the Lethbridge-Coaldale area.

Table (1) shows the status of land tenure during 1960 in the St. Mary and Milk Rivers and Bow River Developments. Applications for land were not accepted, as a large list of qualified applicants have not received allotments, and very few parcels suitable for settlement purposes remain. The remaining available lands shall, in the main, be allotted as "additional" holdings to presently located settlers, and for the development of irrigated community pastures. On the Bow River Development twenty-five (25) applicants were interviewed, twenty-one (21) of which were qualified. This concludes the acceptance and examination of applicants for the Bow River Development, as quite a large list of qualified applicants that have not been allotted land also exists in this instance.

TABLE 1

	S.M.R.D.		B.R.D.	
	Veterans	Non Veterans	Veterans	Non Veterans
Land Sale Allotments 1951-1960	76	95	20	44
Land Sale Allotments during 1960	3	9	2	16
Cancellations and/or Quitclaims	2	1	....	2
Total Agreements to Date	77	103	22	58
Additional units allotted to established settlers	1	7	1	1
Parcels of land remaining unsettled	83 (62 C.P.)*		95 (54 C.P.)*	
Number of parcels leased during 1960	100		104	
Cancellation of Contracts 1951-1960	7		2	
Quitclaims—1951-1960 inclusive	13		3	

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*C.P. refers to land reserved for community pasture developments.

Arrears	S.M.R.D.		B.R.D.	
	Veterans	Non Vererans	Veterans	Non Veterans
	Land	Water Right	Land	Water Right
No. of Settlers 1 year in Arears	43	64	17	3
No. of Settlers 2 years in Arrears	32	22	5	......
No. of Settlers 3 years in Arrears	26	7	2	......
No. of Settlers 4 years in Arrears	13	......	......	......
No. of Settlers 5 years in Arrears	4	......	......	......
No. of Settlers 6 years in Arrears	1	......	......	......
Total	119	93	24	3
Total Amount of Arrears	$95,706.83	$12,091.79	$9,062.46	$171.00
Number of Parcels Paid up and titles transferred or in the process of being transferred to settlers	12		Nil	

The progress of the settlers is believed to be comparable with the general farm economic trends. Hardship is prevalent, but some increase in net worth is apparent. The problems that exist are attributed to poor management, lack of sufficient capital to establish sound farm business enterprises, a lag in land productivity and in some cases a lack of sufficient irrigable acreage.

An economics report on the first forty nine settlers colonized on the St. Mary and Milk Rivers Development was prepared during 1960. Most of these settlers were located in the Taber-Fincastle districts on an average area per farm of 154 acres, of which 88% was cultivated and cropped, and 54% was irrigable. The average gross annual income from 1951 to 1958 inclusive was $4,000.00 per farm, the range being from nearly $9,000.00 to less than $1,000.00. The average capital investment was $15,000.00, being distributed as 10% in land, 35% in equipment, 27% in buildings, and 28% in livestock. The average rate of turnover of capital required 4.1 years, which compares favorably with the Alberta Department of Agriculture studies of farms at Vauxhall and speciality crop production at Taber.

Grain production on the forty-nine settler farms remained quite constant and in general returned a gross income of less than $25.00 per acre.

Specialty crop production returned an average gross income of $65.00 per acre during 1951 to 1954. A lag in yield and income increases existed during 1954 and 1955, which was attributed to the problem of land response, and establishment difficulties of settlement on new land during the first few years. The average annual gross return from specialty crops from 1955 to 1958 was $103.00 per acre.

The increase in acreage of specialty crops was slow, due to a small supply of contracts (markets) for growing these crops, and due to the necessity for properly developed land before available contracts would be allotted. The sugar and vegetable processing industries have been quite co-operative in considering the settlers of the Taber area for acreages of specialty crops. Land Development and increases in specialty crop acreages showed very little progress from 1953 to 1955, but increases were recorded in 1956 and 1957 with another lag beginning in 1958.

To conclude the summary of the report it would appear that the settlers in general are managing the specialty crop production very well, but require larger acreages of these crops. Grain production is very poor. Alfalfa has been favourably remunerative, and an increase in alfalfa and livestock would be desirable.

Land Levelling on Colonization Manager lands during 1960 amounted to the sum of $33,933.93 on 36 S.M.R.D. parcels and $23,699.24 on 21 B.R.D. parcels. A large number of applications for land levelling were received from settlers, forty seven of which were allocated financial assistance, repayable over the period of their respective land purchase agreements. Eleven parcels were prepared for 1961 settlers. Several settlers were disqualified for assistance, and others could not have their applications approved as funds were not available in the appropriation to provide the development work.

Thirty-day notices were sent to 8 settlers to show cause why their land purchase agreements should not be cancelled due to being in arrears, poor husbandry and non-residence. One settler quitclaimed his parcel and one was cancelled out by Order-in-Council. Four settlers showed cause and made commitments which have been carried out. The action on two is at present pending.

Interviews were given to settlers who were showing poor progress in their payments, on husbandry or residence commitments. All of these settlers showed cause regarding their particular problem and made commitments of good intention. The number of settlers involved was 31.

A new form was prepared on which the settlers outlined their Cropping Programme for 1960, along with detail on all possible revenue to be received by them and information on various other phases of their operations. 88 programs were received from the settlers, and were reviewed with the District Agriculturist. These programmes were acknowledged by letter. 57 programs were received too late in the season to be useful for review and assistance to settlers. 92 settlers failed to submit programs.

Progress reports were prepared on 69 Veteran settlers for which $690.00 was received from the Veterans Land Act.

Land was leased to 22 applicants during this past season on a probationary basis with the intention of allotting if operations proved satisfactory. This course of action appeared, from the one season's experience, to be a desirable allotment procedure. The majority of the lessees received an allotment. Allotments in some instances however, have had to be withheld pending the lessee acquiring a further year's experience.

Table (2) contains information on collections in connection with Land Sale and Water Right Agreements. The Land Sale agreements concern only Colonization settlers whereas the Water Right covers all of the irrigable land in the two projects. Water Right collections on the St. Mary and Milk Rivers Development are approaching a maximum as practically all of the agreements are in effect. However, only about one-third of the agreements on the Bow River Development are active at the present time, so that a considerable increase in collections on this project can be expected as the balance of the agreements become effective.

TABLE 2

COLLECTIONS ON LAND SALE AND WATER RIGHT AGREEMENTS

	St. Mary and Milk Rivers Development			Bow River Development	
	1958	1959	1960	1959	1960
Land Sales	$ 38,000.00	$ 30,000.00	$ 41,000.00	$ 7,000.00	$11,000.00
Water Rights	73,000.00	92,000.00	131,000.00	1,500.00	7,000.00
Total Collected	$111,000.00	$122,000.00	$172,000.00	$ 8,500.00	$18,000.00

Note: Figures are shown to the nearest thousand of dollars.

Table (3) shows the status of Water Right Agreements and the arrears of water right payments. The arrears of payments are largely due to the experience of hardship on the part of the farmers, as the result of hail, and management problems encountered in the process of transferring from a dry land system of operation to irrigation farming. The classification of irrigable acreages was reviewed and completed in 1960, to assure a uniform standard of classification from farm to farm on all lands throughout the project. With this work completed and in a stable state, the attitude towards payment of the water rights appears to be favorable.

TABLE 3

WATER RIGHT AGREEMENTS

	St. Mary and Milk Rivers Development	Bow River Development
Total Agreements	1,741	325
Number Non-Irrigable	122	....
Paid Up Agreements	197	
Number Deferred	20	....
Number Inactive	127	208
Number of Active Agreements	1,275	117

Arrears of Water Right Payments

St. Mary and Milk Rivers Development

No. of Farmers In Arrears*		Year	Amount
1 year	278	1960	$65,177.31
2 years	173	1959	25,651.50
3 years	15	1958	1,926.91
4 years	3	1957	192.00
	469		$92,947.72

Bow River Development

No. of Farmers In Arrears*		Year	Amount
1 year	88	1960	$ 4,614.00
	88		$ 4,614.00

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*Farmers include all land owners and settlers in the St. Mary and Milk Rivers and Bow River Development who are in arrears.

In January of 1960 the Water Right Rate Enforcement list of all settlers more than one year in arrears was prepared, showing 87 land owners owing $18,084.92 to the end of 1958. On March 30th, when the list was presented for adjudication there were only 18 land owners owing $3,711.83. At the present time there are 9 of these land owners owing $1,717.10. The adjudication has not been registered at the Land Titles Office as yet as most of these landowners are suffering hardship, and every consideration is intended, to give them time to complete their payments without taking title to their land.

The report of the Provincial Auditor for the year ended November 30th, 1960, will contain statements of advances made on behalf of the St. Mary and Milk Rivers and Bow River Developments, and the assets and liabilities of St. Mary and Milk Rivers and Bow River Development Colonization Manager.

Irrigated Land Development Service

The year 1960 was a year of increased activity, in all areas of work authorized under the policy of the Colonization Branch.

The Land Development Service staff completed the classification of the St. Mary and Milk Rivers Development and the tracings were submitted to the Manager on June 30th, 1960. There were 1,700 quarter sections classified with a total irrigable acreage of approximately 100,000 acres. All quarter sections were classified using the Land Classification Standards as approved by the Classification Committee and the Alberta Government.

Mr. G. L. Steed was appointed to the Co-ordinating Committee and is co-ordinating the land classification work on proposed irrigation projects with the P.F.R.A., S.M.R.D. and Water Resources Branch personnel.

The Drainage Investigator and his staff have supplied all the necessary soils data to the Drainage Committee that is used to consider drainage construction.

Two artesion relief wells were installed in the South Horsefly area in co-operation with the Water Resources Branch. The wells have proven successful in an area where deep interception drainage was unfeasible due to grade difficulties. A noticeable drop in the water table has occurred as a result of the installations.

Detailed observations of the effect of tile drainage on ground water movement were carried out on the first tile drain installed. Data from this and other tile installations to intercept canal seepage will increase design information in the problem areas of Southern Alberta. This past year the Drainage Investigator checked all damage claims submitted to the Drainage Committee as to the area affected and the degree of salinity.

The Land Development program in the districts of Lethbridge, Enchant, Brooks, Taber, Bow Island and Medicine Hat showed an increase in all categories over 1959. In 1959 there were 128 parcels or 2,854 acres of land levelled compared to 212 parcels or 5,850 acres in 1960.

The increased awareness by the farmer of the need for control and efficiency in his irrigation system and the method of applying irrigation water to the land placed an extra heavy load on the staff this past season. This situation was aggravated further by the demands of farmers for field ditch surveys and the classification of the S.M.R.D. However, as the classification is completed and we will not be performing field ditch surveys on the S.M.R.D., more time and attention will be given to assisting the farmer with permanent improvements to his irrigation system. Also positive steps have been taken to encourage the farmer in taking a more active and constructive part in our program. These steps save manpower and at the same time afford the farmer more of an opportunity to learn how he can help himself by using the services we offer.

Considerable co-operation was in evidence in this regard in the E.I.D. both from the land owners and the Manager and Board. In three cases, the original grid survey for the levelling design was supplied by the land owner. The E.I.D. Board of Trustees provided assistance by paying the wages of two additional rodmen for the month of August, while in September and October the engineering department of the E.I.D. put one of their survey crews at our disposal to complete additional field work and thereby service more farmers. This kind of co-operation between our Service and Irrigation Districts is not only more efficient, but promotes public relations.

It should be noted that farmers are also becoming more aware of the necessity and value of farm structures and uniform head ditch grades. In the past year several completed systems including levelling, structures, and border dykes, were installed by farmers from our designs.

The first 300 acres of community pasture land was developed, including levelling, head ditches, structures, corrugations and border dykes. Approximately 260 acres were seeded to fall rye and irrigated. One 74 acre field was irrigated twice. A very satisfactory working relationship on this program has been established with the Chairman of the Land Utilization Board. The Seven Persons Pasture will be completed and the development of the Bow Island Community Pasture will commence in 1961.

The Land Levelling Trust Account had a very successful year due to the long dry season and the total revenue was increased by $34,880.00 over 1959. The rental of a T.S. 14 twin Euclid accounted for $30,206.00 of the increase in revenue, Unit "E" accounted for an increase of $2,028.00 and Unit "G" an increase of $2,646.00. Unit "F" decreased by $385.00, this being due to the fact that Unit "F" tractor was used on farm operations on the Community Pasture part of the season. The 1960 operations showed a surplus of $22,831.83 at the end of November. Depreciation, foremen's wages and the December bills will have to be deducted from this amount, but when the auditors submit their report, a surplus should be anticipated.

STATISTICAL REPORT—1960

IRRIGATED LAND DEVELOPMENT SERVICE—COLONIZATION BRANCH

LAND DEVELOPMENT:

These services are provided, upon the request of the farmer, to facilitate more efficient methods of irrigation and greater net returns per acre. Land classification and drainage data are supplied to administrative authorities and farmers so that more accurate land development and conservation decisions can be made.

I—LAND LEVELLING SERVICES:

Many improvements are required in the methods of handling water and its application. The following assistance is provided to farmers in an attempt to accomplish this improvement.

(A) **Farm Visits**	2,220

(B) Land Levelling:

The services provided for land levelling include surveying, designing, supervision, and survey checking of the jobs in operation and the providing of equipment to do a part of the total number of land levelling jobs in the new development areas.

(1) Number of parcels land levelled	212
(2) Total acreage land levelled	5,850.5
(3) Average cost per acre improved (approx.)	$44.00
(4) Alberta Dept. of Agriculture Equipment:	
Number of land levelling jobs worked	40
Acreage land levelled (detail and spot levelling)	1,348.7
Average cost per acre approx.	$57.00
Number of miscellaneous jobs which include dugouts, farmstead, trimming, grading, and etc., wherein, an area is not improved for farming purposes	19
Total revenue from all jobs (approx.)	$77,441.50
Total expenses (approx.)	$66,800.94
(5) Private Equipment:	
Acreage land levelled (detailed and spot levelling)	4,501.8
Average cost per acre (detail levelling) approx.	$41.00
(6) Total accumulative number of jobs since 1950 by Government Machines and Private Operator's Machines (not including misc.)	852
Total accumulative area of acres improved since 1950 by:	
(a) Government equipment	15,910.0
(b) Private equipment	29,053.0
(c) Total	44,963.0

II—LAND CLASSIFICATION:

Our services in providing land classification includes investigations of parcels of land by the methods outlined in the Land Development Classification Procedures.

(1) Number of quarter sections classified	2,090
(2) Total estimated irrigable acreage classified	130,000.00

III—IRRIGATION ACREAGE CLASSIFICATION:

Our service provides an approved land classification plan showing: total irrigable and non-irrigable acreage, soil types, topography, location of canals, laterals and farm head ditches and other mapable information. These plans are submitted to: Manager of S.M.R.D. and B.R.D., farmer, District Agriculturist, and the Veterans Land Act.

(1) Number of tracings completed (quarter-sections)	1,793
(2) Total irrigable acreage as per tracings	100,000.0
(3) Total number of maps, plans, reports, etc., issued to administrative agencies and farmers as a result of our services	7,254
(4) Total number of bulletins and newsletters issued	256

IV—AERIAL PHOTOGRAPHY:

(1) Number of parcels photographed for acreage classification and soil and topography interpretation data	354
(2) Total estimated irrigable acreage of area photographed (Taber Irrigation District	31,500.00

V—DRAINAGE INVESTIGATIONS:

An investigation for drainage, includes the logging of soil profiles to a depth of 15′ by use of the Sterling Drill, the installation of piezometers and water table wells for recording hydrostatic pressure, water table levels and permeability testing. The analysis of soil samples for salts, salinity and alkali, the survey of test locations and the drafting, plotting, reporting, and interpretation of field data into a final report.

(1) Number of investigations completed	30
Estimated acreage of area	8,475
(2) Number of plans drafted	68
(3) Number of newsletters issued	1,350
(4) Soils Laboratory:	
(a) **Soil Analysis**—Number of samples	4,275
(b) **Water Analysis**—Number of Samples	524

VI—INSPECTIONS:

The following inspections made by the Technical Staff, resulted from day to day work routines and requests for consultation of Colonization, farm irrigation systems, pump irrigation systems, drainage, farm planning survey procedures drafting, and equipment. These inspections are of a detailed type and do not include the passing observations made of land plans and procedures.

(1) Number of field inspections	625
(2) Number of office inspections	1,222

VII—**REPORTS**—Number of all major reports of all kinds regarding all the various services performed	88
VIII—**MEETINGS, FIELD DAYS, DEMONSTRATIONS, SHORT COURSES**	136

IX—MISCELLANEOUS:

(1) Number of office interviews	1,478
(2) Number of telephone calls (Long distance only)	1,247
(3) Number of letters and memos written	1,516
(4) Number of newspaper, radio releases written	94
(5) T.V. Programs	2

LETHBRIDGE NORTHERN COLONIZATION MANAGER

As there was no additional land available for sale, no additional sale contracts were issued in 1960. The land and water right agreements issued since the Colonization Branch was started total 1,101. During 1960, three contracts were paid up, making a total of 1,099, or 99.8% paid in full. The owners of these lands will not have any more capital payments to make and will only have to pay the water service charge in future. Only 2 contracts are not paid in full and only small amounts remain unpaid on these. It is expected that they will be paid off during 1961.

Since 1954, financial assistance given by way of loans to water users has been limited to loans for beet labour and hauling. The total amount loaned in 1960 was $252,460.84 as compared with $249,876.43 in 1959 and $284,718.04 in 1958. The Secretary-Treasurer of the Lethbridge Northern Irrigation District now looks after the office work in connection with the loans and the district bears the total expense of this service. The money used to make the loans was borrowed from the Treasury Branch in Lethbridge. On December 31st, 1960 only $1,420.21 was still owing by a few beet growers. This will be collected out of future payments on the beets.

Each year, some of the sugar beet workers have taken other employment inside and outside of the irrigation district and others become tenants and purchasers of land. While there was difficulty in obtaining sufficient workers, the situation was not as bad as in some former years. In 1960 the workers on the Lethbridge Northern Irrigation District were made up as follows:

Thinning

Japanese	385 ac.	3.0%
Pre-war Europeans and Miscellaneous	954 ac.	7.4%
Growers own families	3,009 ac.	23.3%
Post War Europeans exclusive of 1960:		
Dutch	1,744 ac.	13.5%
Others	3,169 ac.	24.5%
1960 Immigrants	252 ac.	1.9%
Indians	3,405 ac.	26.4%
Totals	12,918 ac.	100.0%

For the first time the Indians were the majority group for labour.

1,302 acres or 10.1% of the crop was mechanically thinned.

Harvesting

9,698 acres or 75% of the beet crop was machine harvested.

The following schedule gives statistics for sugar beet crops on the Lethbridge Northern Irrigation District for the years 1951 to 1960 inclusive:

Year	No. of Growers	Acres Harvested	Tons Harvested	Tons Per Acre	Sugar Content	Total Price Per Ton
1951	515	11,730	118,533	10.11	14.7%	$14.34
1952	514	13,148	165,399	12.57	17.3%	16.08
1953	510	12,516	144,641	11.56	17.3%	14.23
1954	514	13,184	152,869	11.60	15.7%	13.12
1955	511	12,988	146,390	11.27	17.7%	15.29
1956	491	12,545	151,551	12.08	17.2%	18.49
1957	481	12,788	157,798	12.34	14.9%	13.23
1958	487	13,132	195,606	14.89	16.0%	15.32
1959	479	12,029	146,067	12.14	15.8%	15.00†
1960	462	12,918	155,976	12.07	16.3%	*

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†Expected to be this sum after the subsidy is paid.

*Total price will not be known until all sugar is sold.

Sugar beets, was, of course, the main specialized irrigation crop on the Lethbridge Northern Irrigation District and has done more to help the water users to become successful farmers than any other crop. Other crops such as potatoes, peas, turnips, carrots, cabbage, beans, parsnips, strawberries, cucumbers, corn, mustard, gladioli, sunflowers and flax are also grown but we have no definite reports on these.

Feeding and marketing of livestock has also for some time been an important and profitable branch of farming in the Lethbridge Northern Irrigation District. Individual farmers on the Lethbridge Northern Irrigation District were feeding about the same number of cattle this year as in past years.

The report of the Provincial Auditor for the year ended November 30th, 1960 will contain statements of advances made by the Province of Alberta on behalf of the Lethbridge Northern Irrigation District and the Assets and Liabilities of the Lethbridge Northern Colonization Manager.

Report of Agricultural Extension Branch

STAFF

HEADQUARTERS

S. S. GRAHAM, Director
L. W. Rasmusson, Supervisor of District Agriculturists
C. A. Cheshire, Supervisor of District Agriculturists
Mrs. V. G. Macdonald, Supervisor, Home Economics Division
Miss Shirley Wood, Home Designing Specialist
Miss Nancy Pasochnik, Extension Clothing Specialist
R. E. English, Agricultural Statistician
J. L. Reid, Extension Agricultural Engineer
C. R. E. Johnson, Assistant Extension Agricultural Engineer
Farm Economics Branch reported under that heading.

DISTRICT OFFICES

Office	Agriculturist	Home Economist
Athabasca	G. L. Godel	
Barrhead	C. C. Robinson	
Berwyn	G. R. MacNaughton	
Bonnyville	L. Gareau	
Brooks	I. Lapp	Mrs. N. Gray
Assistant	M. F. Wilde	
Calgary	A. W. Beattie	Mrs. I. Leavitt
Assistant	K. Sveinson	Mrs. M. Cox
Camrose	L. D. Williams	Miss K. Carney
Cardston	D. L. Steed	
Claresholm	J. D. Jantzie	Mrs. B. Anderson
Coronation	W. Dietz	
Drumheller	S. W. Pettem	
Edmonton North	J. M. Fontaine	Mrs. D. Westendorf
Edmonton South	P. Jamieson	Mrs. M. Atkinson
Grande Prairie	M. H. Jaque	Miss S. Myers
Assistant	N. Miller	
Hanna	D. R. Macpherson	
High Prairie	L. Bauer	
High River	C. E. Yauch	
Lac La Biche	F. Strashok	
Lacombe	W. L. McNary	Miss J. Saruwatari
Assistant	E. Dobko	
Lamont	G. W. Shewchuk	
Leduc	J. R. Gylander	
Lethbridge	R. M. Trimmer	Miss E. Bartman
Assistant	L. Welsh	
Mayerthrope	H. B. Jeffery	
Medicine Hat	J. L. Anderson	
Assistant	M. A. Cameron	
Olds	H. J. Fulcher	Miss A. Schelstraete
Assistant	A. F. Belyea	
Ponoka	J. L. Kerns	
Red Deer	R. D. Price	Miss E. Dumont
Assistant	E. C. Lowe	
Rocky Mountain House	G. A. Ross	
Ryley	S. C. Powers	
Sedgewick	A. E. Edwards	
Smoky Lake	W. C. Yule	
Spirit River	F. Graves	
Stettler	E. W. Walker	Mrs. H. Moore
Stony Plain	R. C. Bocking	
Strathmore	K. H. Walker	
St. Paul	M. Chevrette	Miss E. Zawadiuk
Taber	A. R. Jones	
Assistant	J. G. Calpas	
Two Hills	Wm. Dent	Mrs. E. Durie
Vegreville	N. A. Chomik	Miss J. Dolling
Vermilion	H. M. Douglas	
Assistant	D. I. Peters	
Wainwright	J. S. Duncan	Miss N. Hooper
Westlock	W. A. Ross	Mrs. B. McCutcheon
Wetaskiwin	W. C. Proctor	Miss D. Evans
Vulcan	C. Roth	
At large		Miss P. Mascaluk

PROMOTIONS AND TRANSFERS

Headquarters

C. A. Cheshire	Extension Engineer to Supervisor of District Agriculturists
J. L. Reid	Assistant Extension Engineer to Extension Engineer
Miss N. Pasochnik	Assistant Supervisor, 4-H Clubs to Extension Clothing Specialist

District Agriculturists

C. Roth	Assistant at Camrose to District Agriculturist at Vulcan
S. C. Powers	District Agriculturist at Lac La Biche to Ryley
N. A. Chomik	District Agriculturist at Ryley to Vegreville
F. Strashok	District Agriculturist at Smoky Lake to Lac La Biche
L. Bauer	Assistant District Agriculturist at Red Deer to District Agriculturist at High Prairie
M. H. Jaque	District Agriculturist at High Prairie to Grande Prairie
W. Dietz	Assistant District Agriculturist at Lacombe to District Agriculturist at Coronation
G. R. McNaughton	Assistant District Agriculturists at Athabasca to District Agriculturist at Berwyn
E. Dobko	Assistant District Agriculturist at Vermilion to Lacombe
L. T. Jones	District Agriculturist at Grande Prairie to Schools of Agriculture
J. T. Lancaster	District Agriculturist at Berwyn to Schools of Agriculture

District Home Economists

Miss P. Mascaluk	District Home Economists at Vegreville to Edmonton
Mrs. I. Leavitt	District Home Economist at Claresholm to Calgary
Miss K. Carney	Instructor at Olds School of Agriculture to District Home Economist at Camrose
Miss E. Dumont	District Home Economist at Wetaskiwin to Red Deer

APPOINTMENTS

Headquarters

C. R. E. Johnson	Assistant Extension Agricultural Engineer

District Agriculturists

N. Miller	Assistant Agriculturist at Grande Prairie
*W. C. Yule	District Agriculturist at Smoky Lake
†E. C. Lowe	Assistant District Agriculturist at Red Deer
D. I. Peters	Assistant District Agriculturist at Vermilion

District Home Economists

Miss S. Myers	Grande Prairie
Miss J. Saruwatari	Lacombe
Miss J. Dolling	Vegreville
Miss D. Evans	Wetaskiwin
Mrs. B. Anderson	Claresholm
Mrs. M. Cox	Calgary (at large and Hanna)

RESIGNATIONS

Headquarters

Mrs. J. Vanterpool	Extension Cliothing Specialist
Mrs. B. Hucal	District Home Economist at Large

District Agriculturists

J. E. Taschereau	Assistant District Agriculturist at Bonnyville

District Home Economists

Mrs. A. Pal	Calgary
Miss Zelma Barteaux	Calgary (at large and Hanna)
Miss P. Nichols	Camrose
Mrs. L. Tissington	Grande Prairie
Miss Marilyn Cooper	Lacombe
Mrs. A. Sproule	Red Deer
Miss H. Howard	(sick leave)

UNDERGRADUATE SUMMER STAFF

District Agriculturist

E. Treffry	Summer Assistant at Berwyn

District Home Economists

Miss G. Robins	Edmonton
Miss E. Buck	Camrose
Miss M. Mason	Edmonton
Miss M. Munz	Red Deer

Summer Assistants

Miss Gwen Daley	Olds School of Agriculture and Headquarters
Mrs. L. Johnson	Vermilion School of Agriculture

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*Formerly District Agriculturists at Claresholm. Resigned 1959. Reappointed 1960.
†Formerly District Agriculturist at Spirit River. Resigned 1959. Reappointed 1960.

DISTRICT AGRICULTURISTS AND DISTRICT HOME ECONOMISTS

The Department looks to the District Agriculturists and the District Home Economists to maintain a close contact with the Farm Families of the Province. They supply needed information and guidance to these families in Agricultural and Home making matters. They also bring the needs of the farm people to the Department.

Their work is more and more that of adult education—of providing farm families with knowledge and skills to enable them to help themselves to meet everyday and longer term situations and problems.

A growing list of Specialists in all fields of Agriculture is available when required to supplement the abilities and training of the District Agriculturists and District Home Economists. These specialists are located at our own Department Headquarters, at the University and at the Research and Experimental centres of the Federal Department of Agriculture.

Field Crops

Extension work under this heading covers a wide variety of problems and projects. Many of these were conducted in co-operation with the local Agricultural Service Boards. Some of the more important problems were concerned with soil fertility, erosion, weed control, seed cleaning, pastures, hay, silage, crop rotations, community pastures, control of crop pests and diseases, control of animal pests and diseases, control of animal pests, tree planting, and farmstead planning.

A summary of these activities include:

1. **CROP IMPROVEMENT**

A. **Grain**

Farmers participating in special projects	87
Meetings, demonstrations, field days, short courses tours	89
Attendance	3,512
Registered seed—bushels instrumental in distributing	28,613
Commercial seed—bushels instrumental in distributing	355,190
Persons otherwise assisted	3,991

B. **Forage**

Farmers participating in special projects	609
Meetings, demonstrations, field days, short courses tours, etc.	84
Attendance	3,461
Persons otherwise assisted	5,115

C. **Seed Processing**

Municipal plants assisted	41
Organizations, meetings attended	51
Director's meetings attended	208
Seed cleaning plants inspected	77
Seed drill survey samples submitted	387
Soil samples forwarded for analysis	2,009
Persons otherwise assisted	1,170

2. **SOIL CONSERVATION**

Special projects	170
Farmers participating	425
Demonstration fields	240
Seen by	2,724
Pounds of forage seed distributed	54,654
Meetings, short courses, field days, tours, etc.	54
Attendance	1,985
Persons otherwise assisted	2,332

3. **WEED CONTROL**

Weed specimens identified	998
Weed specimens submitted for identification	277
Demonstrations	283
Seen by	3,489
Pounds of forage seed distributed	53,447
Meetings, short courses, field days, tours, etc.	97
Attendance	3,263
Persons otherwise assisted	3,560

4. CROP PESTS AND DISEASES

Meetings, short courses, demonstrations, field days, etc.	57
Attendance	1,701
Specimens forwarded for identification	291
Persons otherwise assisted	2,321

5. ANIMAL PEST CONTROL

Farmers participating in coyote control	2,337
Coyotes killed	13,148
Estimated value of livestock saved	$120,000
Farmers influenced to control warbles, lice, ticks, keds, etc.	2,577
Demonstrations, meeetings, short courses, etc.	70
Attendance	1,464
Specimens forwarded for identification	28
Persons otherwise assisted	1,652

6. AGRICULTURAL SERVICE BOARDS

Meetings attended	356
Farms assisted under supervision	223
Farms assisted under reclamation	46
Features—projects, tours, field days (not reported elsewhere)	172
Persons otherwise assisted	1,546

7. HORTICULTURE

Meetings, demonstrations, etc.	87
Attendance	3,696
Farmstead plans assisted	606
Shelterbelt plans assisted	1,124
Trees planted	1,881,145
Demonstration and farm orchards assisted	109
Persons otherwise assisted	4,314

8. BEEKEEPING

Meetings and short courses	3
Attendance	73
Persons otherwise assisted	254

Livestock

Work carried out by District Agriculturists with livestock included information and advice in livestock placements, herd and flock selections, artificial insemination, registration of animals, brands, dehorning, feed analysis, livestock marketing, bangs vaccination, nutrition, diseases, specimens for diagnosis, swine quality improvement and performance testing of cattle. Numerous enquiries regarding livestock diseases were referred to veterinarians, laboratory services and other specialists.

A summary of these activities include:

1. LIVESTOCK IMPROVEMENT

Special projects	129
Farmers participating	7,220
Livestock affected	78,842
Demonstrations, meetings, short courses, tours	335
Attendance	8,870
Herds or flocks selected or culled	431
Feed samples forwarded for analysis	454
Farmers assisted with pedigree registration and/or tattooing	1,075
Farmers using Departmental dehorners	1,545
Breeders using Departmental Tattoo machines	232
Livestock placement (male and female):	
Horses	47
Cattle	3,721
Sheep	3,311
Swine	1,836
Poultry	2,010
Persons otherwise assisted	8,504

2. LIVESTOCK MARKETING

Public sales assisted (excluding Calgary and Edmonton)	97
Persons otherwise assisted	1,439

3. VETERINARY AND LIVESTOCK DISEASE CONTROL

New brucellosis restricted areas actively promoted	19
Farmers participating in bangs vaccination	64,000
Specimens submitted on D.A.'s suggestions	800
Enquiries regarding diseases	4,700
Farms receiving recommendations re improved nutrition	1,237
Farms receiving recommendations re improved husbandry management	1,253
Meetings, short courses, etc.	121
Attendance	3,115
Persons otherwise assisted	1,930

Poultry

The majority of poultry work was handled or referred to the local provincial Department of Agriculture Poultry Inspector. District Agriculturists attended **2** meetings on poultry where the attendance was **58.** 720 other persons were assisted with poultry problems. Many of these dealt with building plans, ventilation and marketing problems. Poultry enterprises were considered in the farm management section and reported there.

Dairying

Topics considered included various phases of breeding, feeding, care and management of dairy herds. Interest continued in artificial insemination, quality silage production, loose housing, milking parlors, bulk tanks, feed handling, record keeping, analysis and use of dairy records. A large amount of dairy extension work was done by local dairy inspectors.

A summary of District Agriculturists' activities in this field include:

Special dairy projects for improved handling of dairy cattle and dairy products	25
Meetings, demonstrations, field days	55
Attendance	2,629
Farmers influenced re dairy cattle testing	246
Dairy herds culled or selected	69
Persons otherwise assisted	1,632

4H Clubs and Junior Activities

District Agriculturists organized and supervised agricultural 4H clubs in their districts. They played an active part in training local leaders. More qualified local leaders and assistants are required to help carry out 4H club work.

The following summarizes 4H and junior activities in which District Agriculturists were actively engaged:

4H functions attended by District Agriculturists	1,588
Attendance at above	70,023
4H Clubs Farm and Home visits by District Agriculturists	3,832
Talks and demonstrations by D.A.'s at 4H functions	1,272
Other Junior activities assisted	35
Attendance	4,529
Persons otherwise assisted	2,485

District Agriculturists assisted with several school career talks and discussed educational opportunities in agriculture with interested parents and children. Information was also provided to prospective students for schools of agriculture.

Farm Management—District Agriculturists

District Agriculturists played an active part in this area. Greater interest and participation was evident by farm families. In many districts the demand for this type of work was in excess of the time and ability of the staff to fulfill requests. Emphasis was placed on the decision making process. Situations were viewed objectively. Problems were defined and possible solutions considered. Some encouraging action programs have resulted.

Specific subject matter discussed with individuals, small group and large meetings included: farm records and accounting, farm business analysis, budgeting, market and price outlook, farm lease and rental arrangements, farm credit and its use, income tax and estate planning.

A summary of District Agriculturists' activities in this field include:

Individual Contacts	
Farm visits	1,564
Office visits	3,755
Number of families involved	2,300
Small Groups	
Organized discussion groups	120
Families in discussion groups	1,182
Number of group meetings	567
Attendance	7,798
Mass Meetings and Short Courses	
Number	97
Attendance	5,324

Information and Publicity

Mass communication media were used extensively by District Agriculturists.

Newspaper releases	2,100
Radio releases	586
T.V. Program appearances	21
Newsletters	306
Newsletter circulation	36,448

Other Agricultural Events

These included a variety of community events associated with agriculture but not reported elsewhere. Many of these was conducted in cooperation with other agencies such as: P.F.R.A., P.F.A.A., S.M.R.D., B.R.D., Colonization and Citizenship Department, Farm Labour Departments, F.U.A. and F.W.U.A., Farm Radio Forum, Boards of Trade and Chambers of Commerce, Town and Community Planning Boards, Exhibition Boards, Civil Defence, Farm and Home Safety, Home and School Associations and other community organizations.

Meetings	361
Attendance	18,147
Persons otherwise assisted	2,720

Summary of District Agriculturists'—Activities

	1959	1960
Number of Meetings	4,335	4,470
Total Attendance	172,739	185,194
Number of Farm Visits	20,827	20,510
Office Interviews	56,483	58,179
Phone Calls	44,955	49,261
Letters Written	42,715	42,374

HOME MANAGEMENT

	No.	Attendance
Lectures and Demonstrations	183	7,196
Home Visits	576	
Home Visits (Farm and Home Program)	189	
Group Meetings (Farm and Home Program)	117	
Otherwise Assisted	1,693	

While problems related to consumer buying for home and family remain dominant in demand for information and advice, matters pertaining to the business of the home, to home records, accounts, budgeting, use of credit and money management have received greater emphasis this year. This is because of the growing realization on the part of farm families of their need for help in these areas and growing awareness that the Home Economist is concerned with the economics of farm and home management.

According to a recent survey, 42% of farm women keep the farm accounts, 62% were jointly involved with their husbands in decision making concerning both the home and farm and particularly the plan of farm finance. There was evidence of a trend for farm wives to either return to paid work to help family finances or to keep the farm going while husbands take off-farm employment. To meet these extra demands on time and energy the homemaker was becoming more interested in management practices and in the making of partial budgets to help arrive at the best possible decisions for the welfare and happiness of her family.

Food and Nutrition

	No.	Attendance
Demonstrations	95	10,079
Lectures	154	....
School Lunch Programs (Organized and Assisted)	14	....
Home Visits	297	....
Otherwise Assisted	2,856	....
Additional information was given at meetings and achievement days of 74 4-H food and garden clubs on food preparation, preservation and standards.		

Newspaper articles, newsletters, radio and television releases, films and filmstrips and group discussions were tools used in addition to the above to bring timely and up-to-date information to the homemaker. Topics and problems most commonly dealt with were "Feeding the School Child, Stretching Your Food Dollar, Freezing and Other Food Preservation Methods, Emergency Feeding, Are You Well Fed or Well Filled?, Large Quantity Cookery for Special Occasions, Adjustments of Family Meals and Special Diets, Short Cuts in Food Preparation". Assistance is being given the Alberta Homes for Senior Citizens in planning, buying and preparing foods suitable for the aged.

Clothing and Home Sewing

	No.	Attendance
Sewing Clinics (3½ days or more)	75	3,168
Sewing Clinics (one day only)	12	178
Demonstrations and Lectures	207	3,896
Individuals Assisted	1,248	....
Home Visits Re: Clothing	336	....

Homemakers were anxious to learn techniques to enable them to sew clothing for their families. Proper selection of fabric, accurate fit, suitability and ease of care were points which they were anxious to learn.

The modern field of textiles and textile blending advanced rapidly. So many new fabrics were introduced, with so little information available on them, that the homemaker was unable to recognize the advantages and the limitations of the fabrics. The District Home Economist was able to provide the latest information in this field and assisted the homemaker in making a wise selection.

The bulletin "The New Fabrics and Finishes" was revised to provide the most up-to-date information to the homemaker on textiles and special finishes applied to them.

Handicrafts

	No.	Attendance
Lectures and Demonstrations	160	4,174
Individuals Assisted	606	....

Information on handicrafts is always in demand by the homemaker. While this is not stressed to the same extent as the basic needs, the District Home Economist provides guidance to the homemaker in choosing practical crafts which will be useful and a source of enjoyment to her.

The District Home Economists were called up to judge and make comments on handicraft and sewing at various handicraft displays throughout the province.

Home Designing

	No.	Attendance
Lectures and Demonstrations:		
(a) Housing	30	2,830
(b) Decoration	75	....
Homes Planned:		
(a) Complete	21	....
(b) Partial	67	....
(c) Building and Finishing Materials	154	....
Home Remodelled:		
(a) Complete	37	....
(b) Kitchens	73	....
(c) Other	42	....
Major Improvements	72	....
Individuals Assisted in Interior Decorating	1,118	....
Total Home Visits	1,508	....

Home Design

Interest in the home building, remodelling and decorating services continues to grow. Home visits were the most effective means of solving problems in these areas.

Field staff assumed increased responsibility. The more complex problems, in particular those which involve remodelling and the drafting of floor plans, were handled by the Home Designing Specialist.

Arrangements were made to supply rural offices with a more complete range of samples and illustrative material in 1960. A slide series re: EXTERIOR COLOR TREATMENTS plus a poster and slide series re: THE ART OF PLANNING were prepared.

Other Activities

At the request of the department of Public Welfare the Supervisor developed suggested public assistance scales of allowances for food and clothing according to age and sex of family members. These scales have provided basic living cost data helpful in assisting other low income families. Also at the request of the Department of Public Welfare assistance was given the new Homes for Senior Citizens in planning and ordering of food suitable for the aged.

District Home Economists arranged programs, lectured and demonstrated at 105 meetings and short courses in conjunction with District Agriculturists, Agricultural Service Boards, and Canada Department of Agriculture. Co-operation was also given the Department of Indian Affairs, Veterans Land Act, Rural Health Units and Public Welfare Branches, P.F.R.A., Exhibition Associations and assistance given local organizations such as School Boards, Home and School Associations, Social Service Clubs, Council of Social Agencies, Y.W.C.A., etc.

Topics related to etiquette, table setting, community meals and quantity service, personal development, public and after dinner speeches, were discussed at 93 demonstrations attended by 4,259 people. Individual assistance was given 1,097 persons.

Topics related to Family Relationship and Child Guidance were given at 40 meetings attended by 1,419 persons. Personal guidance regarding family emotional and behavior problems was given 359 families or individuals.

Services of this Branch were outlined at 325 meetings and at 71 meetings the Schools of Agriculture and Home Economics courses were discussed with a total attendance of 11,992. In addition specific information was given 883 individuals.

Information and Publicity

All District Home Economists prepare weekly newspaper articles and monthly newsletters.

Newspaper articles written	1,043
Number of newspapers using releases	124
Radio releases	50
T.V. releases	11
Radio Talks and Interviews	89
T.V. interviews and demonstrations	23
Newsletters written	216
Average circular	13,234
Publications distributed (on request)	76,407

4-H Girls Clubs

District Home Economists organize and supervise the clubs in their districts. They were assisted by Specialists and Summer Staff with activities such as Leaders Courses, Rallies, Camps, Judging Competitions and efficiency weeks. Complete details of these activities are found in the report of the Junior Activities Branch.

Number of Clubs	168
4-H functions attended	581
Total Attendance	24,650
Home Visits on 4-H and Other Junior Work	475

Summary of Activities—Home Economists

	1959	1960
Demonstrations, lectures, field days and short courses	2,200	2,220
Fairs, conventions judged and addresses	212	285
Total Attendance	95,434	102,711
Letters requesting information	22,827	21,022
Home visits	2,725	2,595
Girls' Clubs	158	168
Office Interviews	5,661	5,948
Phone calls for information	9,682	10,017
Newspaper articles	1,070	1,073

AGRICULTURAL ENGINEERING

Part-time Staff

The demand for agricultural engineering services continued to increase beyond the capacity of the present staff. There was a reduction in the number of demonstrations and field days, because of the temporary decrease in staff during the period of May 1st to October 12th. For the same reason a number of requests for farm calls had to be turned down. Building, Sewerage and Plumbing Schools were not scheduled during November and December as meetings and other work had to receive priority. For this reason the number of these schools was less than the previous year.

The first Home Building and Remodelling Schools was scheduled in 1960. It was highly successful, and it appears that there will be an increasing demand for this type of school.

There was a marked increase in the number of surveys for gully erosion control and drainage and the evidence indicates that requests for this type of work will continue to expand.

District Agriculturists carried out considerable work of a general nature in agricultural engineering, primarily of an individual nature. Where group activities were reported by the District Agriculturists, these were generally conducted by engineers.

The following tables summarize Agricultural Engineering Activities for 1960:

ENGINEERS AND INSTRUCTORS

Activity	No.	Attendance
Schools		
Building	16	599
Water and Sewerage	16	499
Rural Electrification	13	489
Rural Welding	38	906
Home Building and Remodelling	1	45

Demonstrations and Field Days		
Water and Sewerage	25	1,031
Machinery	4	282
Silage	2	50
Gully and Erosion	3	26
Dairy	3	345
Barn Tours	3	174
General		
Short Courses	4	140
Meetings	20	....
Farm Notes	7	....
Radio and T.V. Programs	6	....
Plan Production	1	....
Bulletin Revision	1	....
Farm Calls	354	....
Office Calls	193	....
Letters	653	....
D.A. office calls (4 offices)	164	....
Surveys	38	....

DISTRICT AGRICULTURISTS REPORT ON AGRICULTURAL ENGINEERING ACTIVITIES

	Farm Calls	Office Calls	Demonstrations		Schools		Short Courses and Meetings	
			No.	Attendance	No.	Attendance	No.	Attendance
Machinery	200	317	12	117	1	41	3	477
Field Engineering	260	561	12	1,069	7	209	11	416
Buildings	769	1,716	5	493	27	1,228	7	296
Farmstead Mechanization, Rural Electrification, Water Sewerage, Feed Handling	659	1,561	35	1,392	51	1,794	11	413

STATISTICS

The Statistics Division of the Extension Service co-operates with the Dominion Bureau of Statistics in the work of gathering and compiling statistics of Agriculture for Alberta and making them available to the public.

An annual Dominion-Provincial Conference on Agricultural Statistics serves to maintain uniform statistical procedures between the provincial and federal agencies engaged in the field.

In 1960, the Conference met in Ottawa on February 10-11th. The activities relative to crops, live stock, farm finance and special projects were reveiwed. Two papers were presented on the possible application of aerial photography in statistical work. Progress reports were received on the farm income and expenditure survey, and on plans for the conduct of the 1961 census. Mr. Emerson M. Brooks, Washington, D.C., U.S.A., read a paper on "Agricultural Estimates Methodology in the United States".

The statistician also attended the Agricultural Outlook meeting of Dominion and Provincial Officials held in Ottawa in November.

Progress was made in developing a method of estimating forage crop seeds production. It has been shown that reliable estimates of grass seeds production can be obtained through the use of mailed questionnaires. However, the harvesting of legume seeds normally drags out into late fall or into spring; hence considerable conjecture must be associated with estimates related to these crops.

On request of the Crop Protection and Pest Control Division of the Field Crops Branch, the assistance of the Dominion Bureau of Statistics was obtained relative to a survey by mailed questionnaire designed to determine losses owing to crop pests and animal predators. The staff of the Statistics Division gave further limited assistance in the compilation of data returned by respondents. The quality of the estimates arrived at, is not yet determined.

Trials related to the identification of crops by means of aerial photographs were conducted by the Dominion Bureau of Statistics during July and August. The Alberta Extension Service co-operated by assisting to obtain the ground check data required.

Twelve crop reports were prepared during the growing season and thirteen summaries of crop conditions were compiled for publication by the Dominion Bureau of Statistics. The crop reporting service depends upon the co-operation of some 250 crop correspondents whose assistance is hereby acknowledged.

Agricultural statistics were compiled each month for publication in "General Summary of Statistics" published by the Department of Industries and Development.

The demand for statistics and related information on the part of the public and all departments of government continue to engage the staff of the Division a good part of the time.

PUBLICATIONS

The new Alberta Farm Guide continues to be the most popular publication distributed by the Department. It has replaced to some degree a number of smaller publications previously in demand. Twenty-five thousand copies have been distributed in the fourteen month period since its publication. Increasing number of requests are being received for publications on a wide variety of Agricultural and Homemaking topics. Our budget limits the supply and the distribution. We endeavour to keep a supply and to distribute on request copies of useful Agricultural publications from the University of Alberta, Canada Department of Agriculture and Commercial Organizations.

The following number of publications from all sources were distributed from this centre:

Agriculture (general)	191,746
Homemaking	76,407
Catalogue of Building Plans	6,300
Individual Building Plans	10,460

VISUAL AIDS

The needs of the Department in their work with the public are supplied largely by this branch. The following equipment is owned and maintained for the use of Department personnel.

Motion picture projectors	9
Slide projectors	49
P.A. Systems	5
Films owned	51
Films on loan	86

A total of 574 films were shown at 352 meetings to a total audience of 13,583 persons.

FARM LABOUR

General

Prominent among the changes in Alberta's Agricultural Economy has been the significant change in the farm labour picture. Transient and general farm labourers have decreased in numbers to the degree that they were of little economic importance. Workers formerly depending on this type of employment prefered the apparent benefits of urban jobs with their shorter hours and unemployment payments.

Farm labour was supplied, on the farm, by farm families using their own resources, taking advantage of labour saving equipment, and more powerful machines. Neighbors and experienced farm workers in local urban centres are now depended on to help with peak labour requirements.

(a) Ontario Farm Workers and Prairie Farm Workers

No farm workers were sent to Ontario nor were any Ontario harvest workers brought to Alberta.

(b) Alberta Harvesters

Recruitment and placement of harvest workers within the Province continued to increase in the absence of prairie farm workers from the east.

(c) Sugar Beet Workers—Indian

The number of Indian sugar beet workers increased this year due to an increased total acreage and a lack of any other large source of this type of labour. The National Employment offices at Edmonton, Saskatoon and Lethbridge handled the recruitment of these workers. (Ninety-five per cent of Indians rechuited were Treaty Indians with only five per cent from the "Metes").

Charter buses were used extensively to help cut down transportation costs.

A physical fitness check at the source was attempted to help eliminate physically or mentally unfit workers. This appeared to interfere with recruitment and was relaxed. Slightly more than sixteen hundred Indian Beet Workers were recruited, transported and placed in the beet fields. Sugar Company and Beet Grower representatives indicated that these workers supplied a real need and gave a creditable performance.

The Department placed a Fieldman in the sugar beet growing area to work with the growers and the Indians in helping to deal with the many problems involved. He worked under the guidance of the Lethbridge Manager of the National Employment officer and provided valuable assistance.

Medical and Hospital accounts per worker increased and will receive the serious attention of the Farm Labour Committee.

Custom Combines from U.S.A.

Permits covering the entrance of five combines only were issued for custom harvesting in Alberta.

LABOUR STATISTICS

	1959	1960
General Farm Labour including married couples	1,073	819
Alberta Harvesters	112	334
Sugar beet workers (Indians)	1,061	1,600
Investigations and Transfers	41	15
Custom Combines from U.S.	17	5

AGRICULTURAL SOCIETIES

Improvement of Grounds and Buildings

Some Agricultural Societies made outstanding progress in improving their grounds and buildings for their fairs. Increased patronage resulted from this better accommodation for exhibitors and livestock.

Grants

Grants for activities were paid out in approximately the same amount as in 1959. These activities included Livestock Shows and Sales, Bench Shows (Horticultural), Seed Shows, 4-H Displays, Farm and Home Improvement programs, short courses and schools.

New Societies

One new Agricultural Society was organized at Peace River.

Annual Meeting

The Annual meeting of the Alberta Agricultural Societies was held in Edmonton, December 8th, 1960.

Mr. C. J. Hanson of Wetaskiwin was named President.

Mrs. Doris Kirkwood of Wetaskiwin was named Secretary-Treasurer.

Societies Holding Fairs

The following Societies held fairs:

Class "B"—

Camrose
Lethbridge
Llyodminster
Red Deer
Vegreville
Vermilion

Class "C"—

Barrhead
Battle River
Benalto
Cardston
Darwell
Donnelly-Falher-Girouxville
Goose Creek
Grande Prairie
High Prairie
Medicine Hat
Olds
Pincher Creek
Priddis-Millarville
Vauxhall
Westlock
Wetaskiwin
Wildwood
Willingdon

Others that held Fairs—

Mayerthorpe
Peace River

Societies Not Holding Fairs

Alix
Argle
Fairview
High River
Central Alberta
Drumheller
Edmonton and District
Okotoks
Plamondon
Rocky Mountain House
Lousana
Lamont
Nanton
Spirit River
Stettler
St. Paul

Other activities conducted by Agricultural Societies and participated by District Agriculturists:

Tillage Field Day	1
Livestock Shows and Sales	36
Seed Fairs	8
Horticultural Shows	18
Farm and Home Improvement Programs	12
4-H Club Demonstration and Displays	38
Short Courses and Schools	21

MASTER FARM FAMILY PROGRAM

A renewed interest in this program was indicated by the nomination of twenty-one Farm Families. The following were declared as Master Farm Families:

John R. Grozier Family, St. Albert
Chres Oester Family, Paradise Valley
Arthur Bates Family, Acme
H. M. Haney and Sons Family, Picture Butte

There are now forty-five Families which have been declared under this program since it was introduced in 1949.

NAMES OF HOMES ACT

There were thirty-two homes registered this year under the Act bringing the total registrations up to 369.

FARM WATER SUPPLY ASSISTANCE POLICY

Number of dugouts subsidized this year	61
Total number from 1945 to present	2,797

Report of the Veterinary Services Branch

E. E. BALLANTYNE, V.S., D.V.M., M.R.S.H., Director

J. G. O'Donoghue, V.S., D.V.M., Extension Veterinarian
C. H. Bigland, V.S., D.V.M., D.V.P.H., M.Sc., Veterinary Pathologist
G. S. Wilton, V.S., D.V.M., Veterinary Pathologist
H N. Vance, V.S., D.V.M., Veterinary Pathologist
F. E. Graesser, B.S.A., V.S., D.V.M., Veterinary Micropathologist
H. C. Carlson, V.S., D.V.M., Veterinary Pathologist
G. R. Whenham, V.S., D.V.M., Veterinary Bacteriologist
J. Howell, V.S., D.V.M., Veterinary Pathologist
J. P. Best, V.S., D.V.M., Supervisor, Veterinary Inspection
W. P. Brisbane, V.S., D.V.M., Supervisor, Brucellosis Control

A. GENERAL

This annual report is different in arrangement than those of previous years with the object of more clearly showing the work load of the Branch, the activities involved, and the disease situation in the province.

Demands for service, advice and participation in a wider application of veterinary science continued to increase. A parallel exists with practitioners in the province as well. Such a development has been quite apparent in the past 10 years due to an increasing awareness that disease prevention and control are an integral part of developing a financially successful livestock enterprise. Contract farming, integration, specialization, more cognizance of the public health aspects of diseases of animals transmissible to man of which there are approximately 50 in Alberta, a better informed public as to the value of veterinary medicine, an increased number of veterinary clinics and hospitals, etc. are all contributing factors in this change.

No epidemics of serious diseases occurred in poultry or animals in 1960 although the mink industry experienced its first outbreak of virus enteritis which was confined to one ranch. Q fever was confirmed as being present in Alberta. There were no cases of rabies which in our opinion is further proof of the value of the extensive control program of 1952-56. Losses from the regular diseases of nutritional, bacterial, viral, fungal, parasitic and chemical origin continued as usual with faulty management and nutrition contributing to a high degree as predisposing factors.

More demands for research were received but participation was very limited due to a lack of facilities and staff for that purpose. Many of the problems had an implication for the health of humans, domestic animals and wildlife. The section on special projects outlines the main activities in the research or experimental field. With the opening of the new facilities for the Faculty of Medicine at the University of Alberta the cancer research dogs were removed from the Veterinary Laboratory and the space temporarily allotted for another medical research project on the heart-lung equipment with some of our staff assisting. Assistance in obtaining material for research was rendered to veterinary research institutions.

The Brucellosis Restricted Area program continued to expand with 2,500,000 cattle under supervision. Only another 100,000 are yet to be included. 440,073 calves were vaccinated compared to 366,058 in 1959 and 6,700 in 1947. The value of this program has meant several millions of dollars and a stabilizing influence to the Alberta cattle industry as well as protecting human health. According to many it is the main factor responsible for the increase in the cattle population in the past 10 years. The Federal Department of Agriculture, Health of Animals Division, are now testing in 9 of their 22 Gazetted Brucellosis Control Areas. The incidence of infection is approximately one-half of the national average, further proof of the value of our calfhood vaccination program, control of auction sales and branding of reacting animals.

Veterinary inspection of livestock at Class D, E and F stockyards increased to 565,449 (510,625 in 1959). This service is greatly appreciated by all concerned as being of great value in preventing the spread of livestock diseases. The value of livestock inspected in 1960 was between $30,000,000 and $40,000,000. The animals rejected for diseased or suspected disease conditions were definitely better out of marketing channels.

The Laboratory services were utilized heavily with 14,161 specimens being examined, 39,837 serological tests made, 2,669 tissues examined histologically, 7,292 specimens examined bacteriologically, 676 samples processed for poisons, etc. This severely taxes the present facilities and staff as extensive and increasing detailed work is required for many, including experiments. Some of this is due to unknowns of long standing or new problems created by technological advances in other fields. The vital statistics data continues to prove of great value to the Branch in directing efforts to improve preventative measures on the main economic diseases. When coupled with the laboratory statistics a good basic picture of the disease situation is obtained. The data was used by others; namely, drugs companies, other governments and research institutions as it has been difficult in the past to get reliable figures of disease incidence on farms.

Dr. J. A. Greenway, Acme, opened a Specific Pathogen Free Pig Laboratory which will greatly assist many swine producers to drastically reduce the economic loss from such diseases as rhinitis and virus pneumonia.

Several individuals were assisted by advice and plans to build satisfactory slaughter houses. Study was given to providing veterinary inspection, improving slaughtering facilities and humane slaughtering at country slaughter houses.

Dr. C. H. Bigland received his M.Sc. degree at the University of Alberta and Dr. H. C. Carlson was granted leave of absence to undertake post graduate studies at the same university. Keeping up with all the technical advances in veterinary medicine and allied sciences is a staff problem in order to maintain service to the agricultural industry at the highest standards possible. This is accentuated by the lack of a veterinary college and research facilities close to the laboratory. Post graduate studies do assist and this privilege is greatly appreciated.

Dr. J. Howell joined the laboratory staff as a veterinary pathologist in June. Other members of the technical staff are Mr. J.

Bacle (Agriculture, France) and Mrs. G. Henningson, B.Sc., who do the routine bacteriology.

Consultive service was given concerning antibiotics and insecticides in milk, oil and gas field problems, nutritional diseases, drugs, etc. to other agricultural and medical workers. This is an increasing activity.

Details of the various activities are outlined below with additional data and technical tables to be included in the addenda of the Branch report.

B. FIELD SERVICES

These comprise the operation of offical programs, Brucellosis Control, Veterinary Inspection Services, purebred swine health policies, the investigation of specific disease problems, field study projects and education efforts, including meetings and lectures.

Field Investigations	
Cattle	31
Swine	23
Sheep	3
Horses	2
Poultry	17
Fur Animals	32
Wildlife	2
TOTAL	110

Inspections	
Livestock Markets	145
Stock Yards	302
Biological Permits	25
Swine R.O.P. Bonus	23
Swine Health Herd	71
TOTAL	566

Meetings	
Brucellosis	46
Domestic Animals	40
Poultry	10
Professional	8
TOTAL	104

Lectures	
University	78
Schools of Agriculture	28
Others	18
TOTAL	124

Lectures at the University are given to agricultural, pharmacy and medical students. Others include R.C.M.P., A.I. technicians, etc. A total of 204 farm visits were made in the above investigations and inspections.

Veterinary Personnel

(a) Students: The number of Albertans attending Veterinary Colleges is as follows:

	1st year	2nd year	3rd year	4th year	5th year	Total
O.V.C.	13	10	6	9	6	44
Washington	......	1	1	......	......	2
TOTAL	13	11	7	9	6	46

Commencing for the 1960-61 college year the Department increased the annual grant from $200 to $300, payable on the successful completion of each year's examinations.

(b) **Practising Verterinarians**

During the year 14 more veterinarians entered practice, making a total of 118 practitioners. Several practitioners built veterinary clinics to further increase and improve their services to the public.

Certified Healthy Herd Program for Swine

With representatives from the associations of the Alberta Provincial Swine Breeders, Alberta Swine Breeders, R.O.P. Breeders, Landrace Breeders and Alberta Veterinary Medical Association the program was developed with the above groups laying down the rules of operation with this Branch administering them as well as doing the laboratory work, etc. involved. The program is confined to purebred breeders in an effort to provide as disease-free breeding stock as possible to reduce the economic loss in the swine industry. Ten herds were accepted on a trial basis and we expect to accept more in 1961.

T.B. of Poultry and Swine

This educational program has been carried out since 1950. Owners who hogs showed evidence of T.B. at the packing houses under Federal Health of Animals veterinary inspection, were sent at letter explaining preventative and control measures which were essentially better management and husbandry practices. The incidence at the Edmonton packing houses has decreased from 35% in 1950 to 17% in 1959. Reports received too indicate considerable improvement in poultry and swine husbandry as a result of this educational project.

Approximately 535 letters were sent out in 1960.

Federal T.B. Restricted Areas

The Health of Animals Division, Federal Department of Agriculture, completed testing all cattle in the province the first time. Several M.D. and Counties are already being retested to maintain accreditation and prevent the disease becoming established, even although the incidence has always been extremely low in Alberta. This progress enabled restrictions to be lifted at the Edmonton, Calgary and Lethbridge stockyards which greatly facilitated marketing procedures.

Civil Defence

Considerable time was spent on veterinary and agricultural civil defence. One aspect was to assemble all the available known facts on this field to enable protection of the livestock and livestock products, in case of nuclear, biological or chemical warfare. Due to his training, knowledge of the total biological life and implications to humans, the toxicology and infections involved, the veterinarian is the key individual in making decisions concerning agriculture in civil defence and concerning food for human consumption. A limited experiment was conducted to show the effects of radiation, similar to that in a fallout zone, on hatching eggs and chicks.

During the year the Director was assigned extra duties as Emergency Planning Officer for the Department to work out a survival plan for Alberta Agriculture and the continuity of Department activities. This will entail a greatly expanded effort in 1961.

Lectures in veterinary civil defence was given at the Canadian Civil Defence College, Arnprior, the Canadian Veterinary Medical Association convention and the Ontario Veterinary Association Convention.

Permits

Permits were issued under the Livestock Diseases Act for the following:

(a) Brucellosis—to 118 veterinarians to use Brucella abortus strain 19 vaccine.

(b) Poultry Disease Vaccines—to 40 veterinarians, 44 druggists and 21 hatcherymen to sell such vaccines, the latter to their supply flock owners only. 523,100 doses of infectious bronchitis vaccine, 49,000 Newcastle diseases vaccine and 12,000 doses of combined I.B. and N.D. vaccine were distributed by permit holders making a total of 584,100 doses which is a reduction of 457,400 doses from 1959. The regulations require proper refrigeration facilities to ensure as good a vaccine as possible being received by the poultry owner.

(c) Injectable veterinary biologics—to 106 business or individuals to sell, or distribute same which does not include antibiotics, drugs, etc. All must have refrigeration facilities to ensure proper handling. These permits were instituted in 1950 as the result of an amendment to the Alberta Pharmaceutical Association Act.

Educational Courses

In the belief that individuals do a better job in disease prevention when well informed the first 5 day short course was held for A.I. technicians and the tenth 3 day one for hatcherymen. These were done in cooperation with the Livestock and Poultry Branches respectively. Assistance was given also to the Extension, Fur Branch, and others in furthering adoption of preventative veterinary medicine procedures. The possibility of holding a course for feed manufacturers was tentatively explored.

Brucellosis Control

Thirteen new areas were established as Brucellosis Restricted Areas, making the total seventy-two. The Province is all under the program with the exception of some districts in the north east and a few small areas in the south.

There are twenty-two areas gazetted by the Federal Department of Agriculture as Federal Brucellosis Control Areas. Testing of cattle in nine of these areas is in progress and testing should commence soon in other Federal Areas. The incidence of Brucellosis in the Federal areas under test has been less than one per cent, which is below the national average for Canada.

Calfhood Vaccination

440,073 calves were vaccinated with Brucella abortus vaccine, which makes a total since 1945, of 2,500,000 calves vaccinated. The accompanying graph shows the annual vaccination of calves.

Brucellosis Restricted Areas

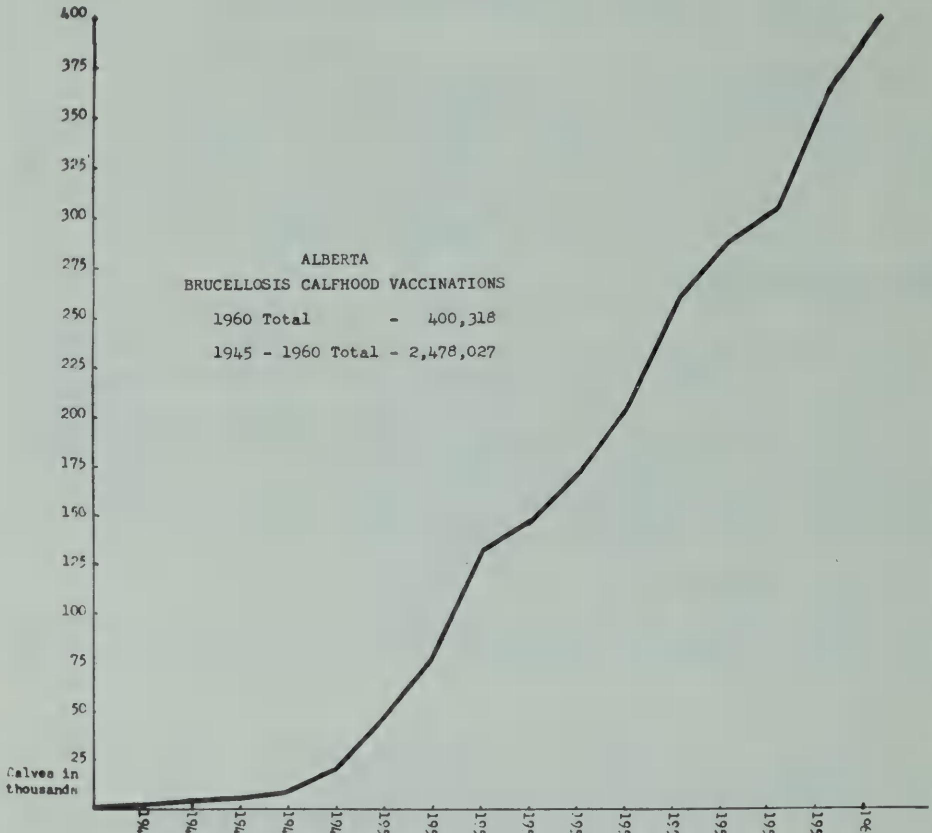
The following new districts were established as Brucellosis Restricted Areas:

The Counties of Forty Mile No. 8, and Newell No. 4: the Municipal Districts of St. Paul No. 86 and Fairview No. 136; Improvement Districts Nos. 111, 124, 126, 131, 946, 77, 78, 95, and 50.

The accompanying map shows the Brucellosis Restricted Areas, Gazetted Federal Brucellosis Control Areas and Federal Control Areas already under test.

In our Brucellosis Restricted Areas grants are paid to the Councils to defray the costs of the Agricultural Services Boards which are responsible for the organizing of the program and administration of the regulations, as well as assisting the cattle owners with the vaccination fees.

105 veterinarians and 52 Agricultural Service Board Field Supervisors are inspectors under the Livestock Diseases Act to carry out the provisions of the Brucellosis Control Program.

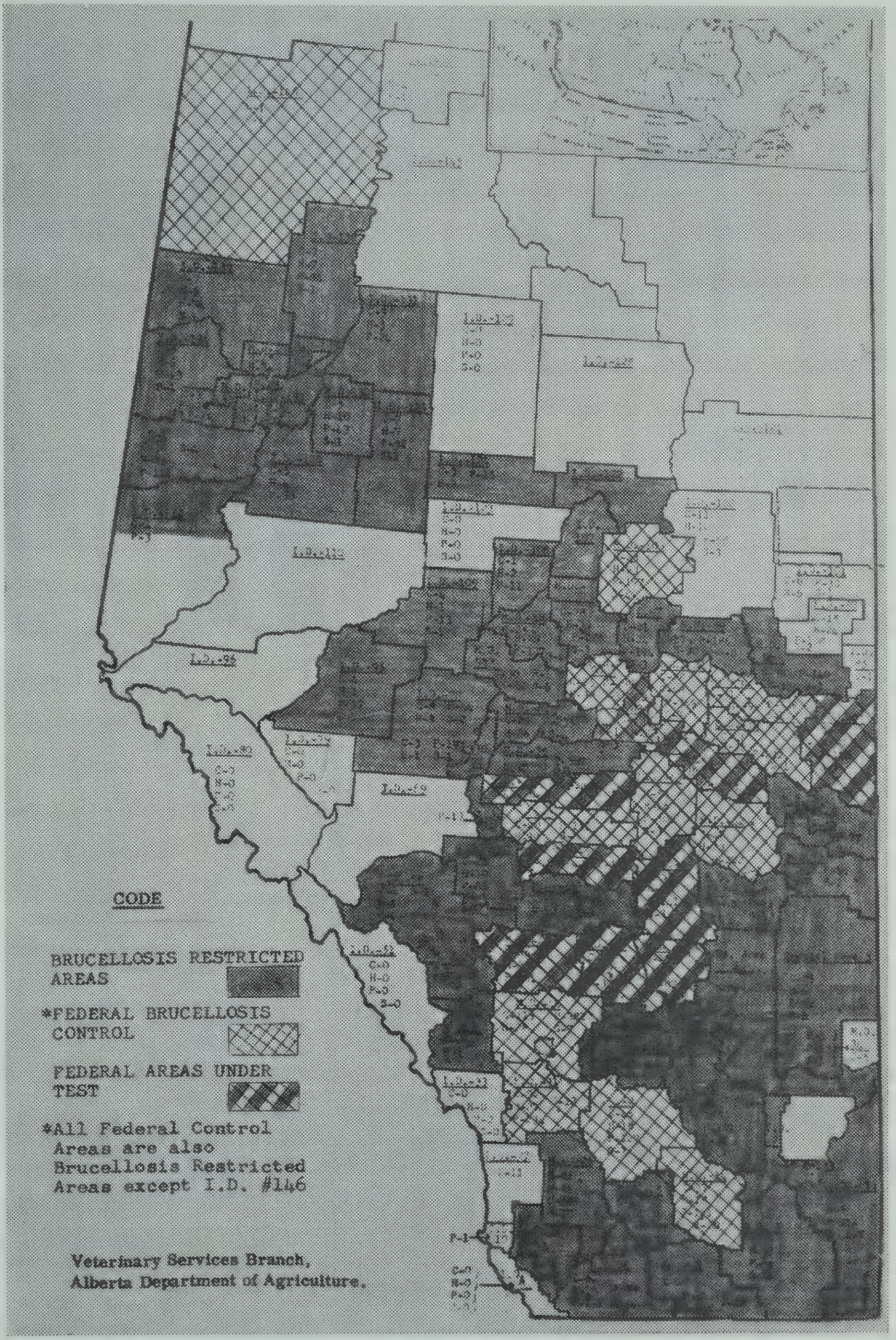


ALBERTA
BRUCELLOSIS CALFHOOD VACCINATIONS
1960 Total - 400,318
1945 - 1960 Total - 2,478,027

Veterinary Inspection Service

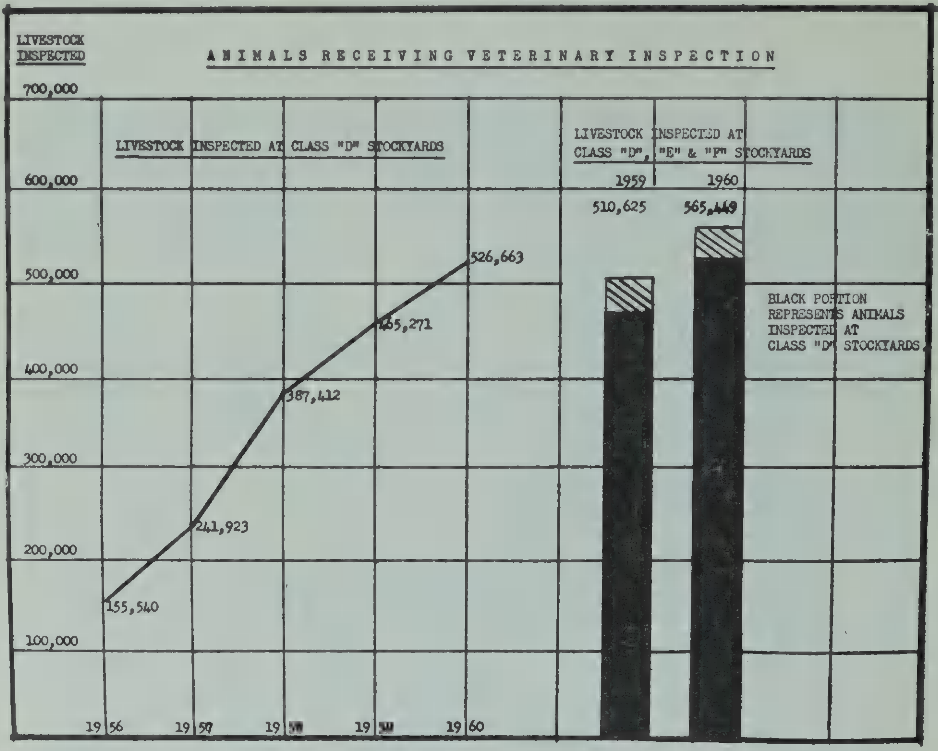
During the year all the animals sold at 35 Class "D", 2 Class "E" and 4 Class "F" Stockyards received Veterinary Inspection. In addition, 49 Class "C" and 296 Class "G" Stockyards were under the supervision of this service.

The number of cattle inspected at Class "D" Stockyards increased by 103,132 or 63%, compared to 1959. This heavy increase resulted in an additional 756 Man Days being required for Veterinary Inspection. Several of these stockyards operate regularly 2 and 3 days a week compared to one when originally opened.


CODE
BRUCELLOSIS RESTRICTED AREAS
*FEDERAL BRUCELLOSIS CONTROL
FEDERAL AREAS UNDER TEST
*All Federal Control Areas are also Brucellosis Restricted Areas except I.D. #146

Veterinary Services Branch,
Alberta Department of Agriculture.

The results of the inspection provided by this Branch are tabulated in consolidated form in the following charts.



Summary of Results of Veterinary Inspection

Type of Stockyard	No. of Stockyards	Species	Inspected	Rejected	%
D	35	Cattle	266,481	6,805	2.55
		Swine	226,571	5,601	2.47
		Sheep	25,302	146	.58
		Horses	8,309	26	.31
		Total	526,663	12,578	1.68
E	2	Cattle	30,677	379	1.24
F	4	Cattle	8,109	118	1.45
GRAND TOTAL	41		565,449	13,075	2.31

Of the 13,075 animals rejected for clinical disease or suspected disease conditions the owners decided to take 6,485 home, and 6,590 were sent for slaughter (1,847 for disease and 4,743 because owners declined to have animals tested for brucellosis).

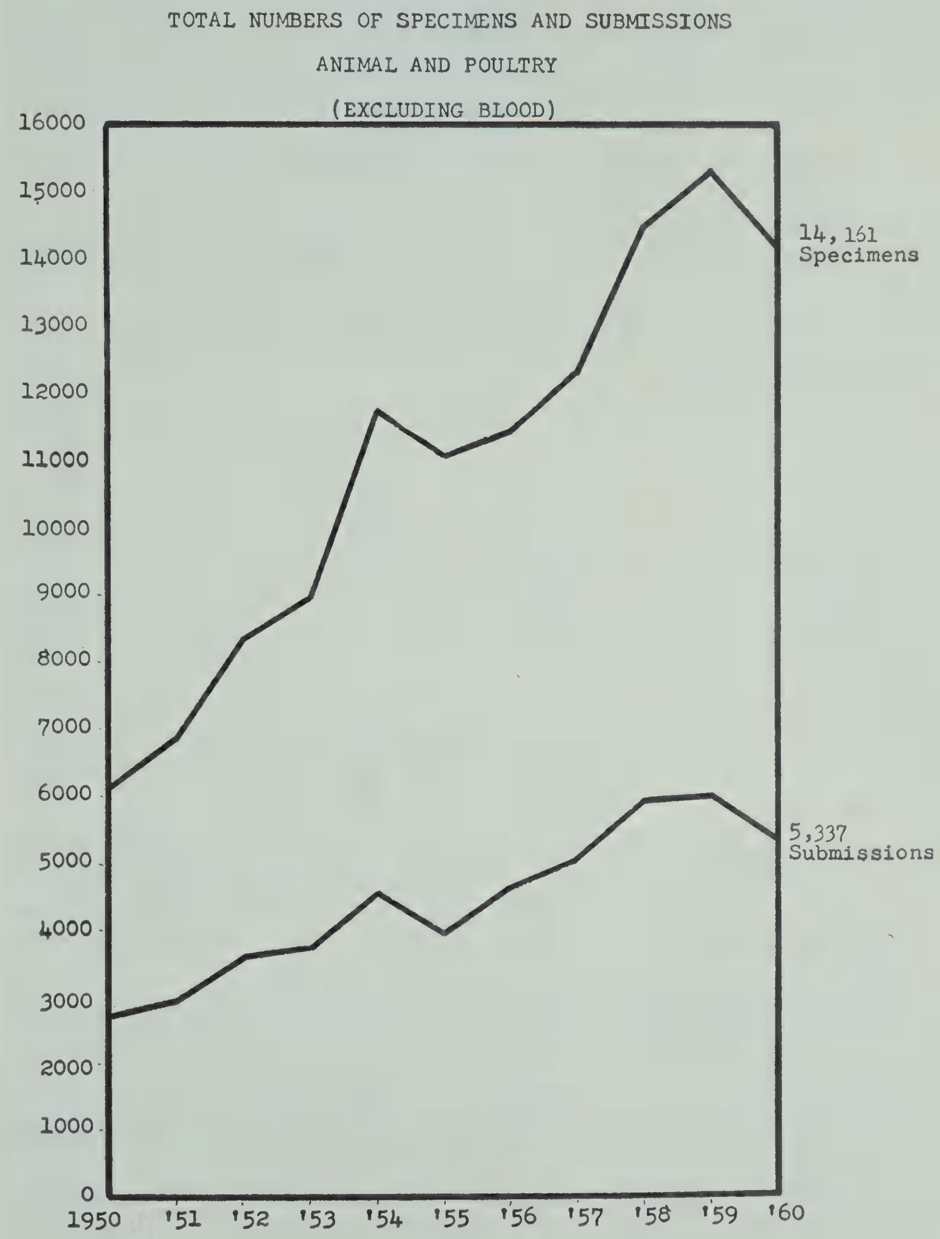
Man days for veterinarians' services was 2,385 for livestock inspection and 360.5 for sanitary inspection, totalling 2,745.5 days.

The four main diseases causing rejection of cattle were mastitis, cancer-eye, lump-jaw, and pneumonia; for hogs—rhinitis, mange, arthritis, and penumonia; for sheep—pneumonia, arthritis, dermatitis and enteritis; for horses—strangles.

One hundred and five (105) veterinarians acted as inspectors for this service as required by regulations of the Livestock Diseases Act.

C. LABORATORY SERVICES

The following graph shows the relationship with other years concerning the number of specimens examined and submissions received. This doesn't indicate the amount of work on each specimen which is a changing variable. For example more older poultry are being received which often require a longer work effort than younger birds.



TOTAL NUMBERS OF SPECIMENS AND SUBMISSIONS

ANIMAL AND POULTRY

(EXCLUDING BLOOD)

SPECIMENS

Type	No. of Species	Total	From No. of Premises
Domestic	14	10,593	4,026
Wildlife	49	349	210
Laboratory	5	96	50
Others	14	3,123	1,059
Total	82	14,161	5,345

The domestic specimens were: 3,271 chickens, 2,548 cattle, 2,070 swine, 1,629 turkeys, 431 dog, 191 mink, 188 sheep, 118 horse, 96 cat, 26 chinchilla, 10 Geese, 8 ducks, 6 Nutria, and 1 goat.

The wildlife specimens were: 62 pigeon, 55 budgerigars, 27 canary, 24 deer, 22 moose, 19 grouse, 12 caribou, 12 swan, 10 monkey, 8 antelope, 8 ducks, 8 pheasant, 7 kangaroo, 6 muskrat, 6 partridge, 6 penguin, 5 sparrow, 5 seal, 3 wolf, 3 beaver, 2 agouti, 2 buffalo, 2 coyote, 2 elk, 2 cockateel, 2 crested screamer, 2 dove, 2 guinea fowl, 2 magpies, 2 parakeet, 2 owl, 2 troupal, 1 flying squirrel, 1 fox, 1 honey bear, 1 ocelot, 1 otter, 1 squirrel, 1 blue jay, 1 crow, 1 mynah bird, 1 peacock, 1 pelican, 1 ptarmigan, 1 robin, 1 tanager, 1 vulture, 1 waxbill and 1 wild turkey.

The laboratory specimens were: 73 guinea pigs, 12 rabbits, 7 rats, 3 mice and 1 hampster.

Other were: 788 eggs, 544 milk samples, 317 fecal samples, 302 tampons, 253 blood samples, 208 water samples, 183 feed samples, 168 fluff, 88 meat meal, 87 miscellaneous, 84 meat samples, 81 urine samples, 14 semen samples and 6 swabs.

Diagnostic Serology

The following chart outlines the serological tests conducted at the Laboratory:

	Bovine	Porcine	Equine	Buffalo	Elk	Moose	Deer	Big Horn Sheep	Poultry
Brucellosis Provincial	32,473	30	......	300	225	50	10	5	
Brucellosis Federal	2,164	......	......	......	......	......	......	......	......
Vibriosis Serum	146	......	......	......	......	......	......	......	......
Vibriosis Mucus	302			......	......	......	......	......	......
Leptospirosis	203	43	1	......	......	......	......	......	
P.P.L.O.	......	......	......	......	......	......	......	......	898
Newcastle	......	......	......	......	......	......	......	......	37
Pullorum	......	......	......	......	......	......	......	......	342
Ornithosis	......	......	......	......	......	......	......	......	858
Salmonella	......	......	......	......	......	......	......	......	1,750
	35,288	73	1	300	225	50	10	5	3,885
Total tests									39,837

The percentage of positive reactors to the Brucella test of Provincial bloods was 2.8%. Brucella tests at Auction Markets amounted to 11,734, with 2.1% reactors. At one large Auction Market the percentage has dropped from 3.0% in 1957 to 1.6% in 1960.

Mucus agglutination tests for Vibriosis were conducted on specimens from 60 premises with 27 being positive.

Histopathology

Histopathology is an integral part of laboratory function, and is essential for accurate diagnosis and detailed pathology studies.

The number of tissues processed for histopathological examination amounted to 2,669, which represents an increase of 11% over the previous year's work. From these, approximately 3,000 sections were prepared and studied microscopically. The following table is presented to show the species of origin and the number of submissions from each:

Domestic Animals		**Fur-Bearing Animals**		**Miscellaneous Animals**		**Poultry**	
Species	No.	Species	No.	Species	No.	Species	No.
Bovine	424	Mink	312	Wild Life	22	Chickens	508
Canine	374	Chinchilla	5	Zoo	16	Turkey	134
Equine	56	Nutria	3	Laboratory	36	Misc.	110
Feline	88	Misc.	8				
Ovine	48						
Porcine	525						
Total	1,515	Total	328	Total	74	Total	752
GRAND TOTAL							2,669

Toxicology

A total of 676 laboratory submissions were referred to the Provincial Analyst for toxicological examination. Of these, 439 were animal and poultry specimens from cases of suspected poisoning. The remainder consisted of water and feed samples which were suspected of being responsible for harmful effects in livestock.

The following table provides a breakdown of the work done and results obtained from these examinations:

TOXICOLOGICAL EXAMINATIONS

POISON	Bovine	Canine	Equine	Porcine	Fur-Bearing	Poultry	Total Poison	GRAND TOTAL
Algae	5						5	
Arsenic	6		1			1	8	
Barbiturate		1					1	
Carbon Monoxide					1	10	11	
Creosol	1						1	
Ethylene Glycol	1						1	
Fuel Oil	1						1	
Lead	8						8	
Lye		1					1	
Mercury	13	1				5	19	
Nitrate	9						9	
Petroleum	3						3	
Selenium	1						1	
Strychnine	4	45			1	2	52	
Salt				3		1	4	
Sweet Clover (Dicoumarin)	3						3	
"1080"		7					7	
Sub-Total	55	55	1	3	2	19	135	135
Negative for Poison								304
FEED	Negative	38	Contaminated 14					52
WATER	Satisfactory	120	Unsatisfactory 65*					185
GRAND TOTAL								676

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*Glauber's Salts 14, Nitrates 28, Salt 7, Soda 16.

Bacteriology

Many of the animal and poultry accessions receive routine examination for pathogenic bacteria. The bacteriology section received three thousand, three hundred and seventy-one specimens from the animal pathologists, and three thousand, nine hundred and twenty-one from poultry pathologists. These were examined in a variety of ways, including bacteriological, serological, microscopic, chemical, animal inoculation, etc. The following chart illustrates examinations conducted and other work performed:

Total Specimens Received		7,292
Bacterial Examinations	5,214	
Focal Examinations	310	
Blood Counts	146	
Skin Scrapings	58	
Urinalyses	85	
Mastitis Tests	554	
Cuboni Pregnancy Tests	27	
Serological Tests	898	
Vaccine and Bacterin Production		60,000 c.c.
Media used: Plates		32,000
Liquid		250,000 c.c.
Experimental Animals Inoculated (Whole Laboratory)		1,324

Mice	763	Turkeys	70
Rabbits	11	Calves	2
Guinea Pigs	318	Mink	2
Chickens	136	Lamb	1
Pigs	21		

Special Bacteriology

Many bacteriological projects were conducted which are reported elsewhere. The chart below shows the work done on reproductive diseases with findings from feti and tampon tests:

Feti	Total	Vibrio	Brucella	Strep	Coryne	Mycotic	Negative
Bovine	215	13	13	5	4	3	177
Porcine	10	......	......	......	. .	......	10
Equine	14	......	......	7	1	......	6
Ovine	7		......	1	......	......	6
Tampons	302	121	(Premises positive 27)			......	......
Total farms shown to have Bovine Vibrosis						36	

Virology

The following table illustrates the virus examinations conducted using a variety of techniques:

	Total Examined	Number Positive
Avian Encephalomyelitis	9	1
Infectious Bronchitis	25	1
Newcastle Disease	5	0
Ornithosis	42	2
Psittacosis	18	6
Others	6	0
Total	105	10

Salmonella

Infections with organisms of this group are often called "Paratyphoid infections" involving many species of birds and animals, including man. The following table indicates the number in each species affected here. Each isolation represents one outbreak of infection in a group of birds or animals.

Salmonella Isolations—1960

Turkeys	70
Chickens	44
Porcine	34
Bovine	7
Mink	4
Nutria	1
Monkey	1
Moose	1
Total	162

Although there are over 250 different types of Salmonella identified, only about 24 have been isolated in the past 12 years from birds and animals in Alberta. Similar types are isolated also from humans in Alberta. The accurate typing of each Salmonella is important scientifically in tracing the infection to its source as a basis for proposed control program, and to illustrate the circulation of Salmonella between animals, birds and humans.

SPECIAL INVESTIGATIONS

From time to time, situations arise which cannot be adequately investigated by routine procedures. Many of these problems would require research personnel and facilities beyond our means. However, within the limits of facilities and time available, the following wide range of special investigations were conducted.

Salmonella in Meat Scrap—A survey to determine the incidence of Salmonellas in meat scrap samples was conducted. One hundred samples were examined bacteriologically with Salmonella species being isolated from two.

Antibiotics as Preservatives for Game Meat—Jointly with the Game Branch, twenty-one samples of wild game were examined bacteriologically to test the effects of antibiotics as preservatives for game meat. This concluded a trial begun the previous year.

Hatchery Hygiene—In co-operation with the Poultry Branch, one hundred and seventy-five samples of hatchery fluff received bacteriological examination. This work was conducted as part of a continuing project on hatchery fumigation and sanitation.

Clostridial Toxins—One hundred and fifty-one sheep and cattle intestinal contents were examined for the presence of Clostridal toxins. Several were found to be toxic for mice and the toxin was typed to determine the particular organism involved.

An Unusual Respiratory Disease—A herd of purebred Shorthorns which has been plagued by an unusual respiratory disease for several years, has come in for intensive study in collaboration with the Connaught Medical Research Laboratories. Many samples have been forwarded to Connaught, and it appears that some answers to the problem may not be too far in the future.

Irridiation of Embryonated Chick Eggs—Certain studies on the susceptibility of embryonated chicken eggs to irradiation have been carried out and these trials are continuing in the hope of adding something to the overall knowledge concerning radiation hazards with particular reference to agriculture.

"Q" Fever—Since the presence of "Q" fever was established in cattle in the Province in 1959, through the work of this Laboratory and the Dairy Laboratory, meetings have been held with the Department of Public Health to plan suitable control procedures should they become necessary. It has been decided that some further testing should continue in order to more fully establish the incidence of the infection in our herds and flocks.

Ornithosis in Turkeys—An ornithosis infection with an agent of low virulence in turkey breeding flocks in Alberta was recognized during the spring of 1960. Virus isolation and positive serological tests in two flocks, confirmed the presence of the disease. The agent was successfully transmitted to day-old poults, but not to day-old chicks. Random sampling revealed serological titres in three of five other turkey flocks, possibly indicating exposure to an ornithosis agent. Infected poults were raised in order to investigate the level of serological reactions and the persistence of the virus.

Ornithosis in Pigeons—A number of wild pigeons were examined for the presence of ornithosis agents by serological tests and mouse inoculation.

Air Sac Infection in Baby Poults—A number of air sac infections in baby poults were encountered during the year. Neither PPLO nor ornithosis agents were involved in these outbreaks. Field investigations were conducted to check some flocks for the presence of PPLO or ornithosis. Infected poults were raised in order to investigate the persistence of lesions. Serological tests were also conducted over an extended period.

Blood Coagulation—Blood coagulation studies were conducted on turkey and pigeon blood.

Alberta Random Sample Test—All birds which die during the Alberta Random Sample Test are examined for cause of death.

University Farm—All birds which die at the University Poultry Farm are examined at this laboratory.

Pullorum Reactors—All pullorum reactors encountered in field testing are examined very carefully for the presence of Salmonella pullorum organisms. Serological tests are also conducted on all these specimens. Of 125 pullorum reactors encountered during the year, 32 were found to be harboring the Salmonella pullorum organism, and 93 were considered to be non-pullorum reactors.

Air Pollution—Investigation into farmer complaints led to the commencement of an intensive study of the effect of hydrogen sulphide and sulphur dioxide in swine, rabbits and guinea pigs. It included the exposure of animals to the gases alone and in combination at varying concentrations for periods of from a few hours to several weeks. Lethal effects, retarded weight gains and gross and microscopic pathology were studied. In excess of 2,000 man hours were devoted to this project during the summer months.

Clostridial Diseases—In ranching areas, unexplained losses continue to occur in range cattle. It is believed, but not proven that Clostridium perfringens is responsible. A large scale immunization field trial involving 1,200 cattle was commenced using Clostridium perfringens type C, type D, and controls. This was an expansion of work done in previous years with feed lot cattle and should be continued for another year.

Staphylococcal Mastitis—Five dairy herds with a combined total of 165 cows in which staphylococcal mastitis was a known herd problem were selected to assess the efficacy of commercial staphylococcal toxoid and laboratory produced autogenous bacterins. With the co-operation of practicing veterinarians the herds were sampled, toxoid or bacterin administered to a portion of each, and resampled within a following twelve month period. Final assessment is not complete, but both products did show merit in clinical control and reduction of new infections.

Salmonellosis—A joint investigation with the Animal Disease Research Institute, Hull, Quebec, is being conducted with regard to the possibility of developing serological tests for this disease condition in poultry.

Infectious Hepatitis in Poultry—Infectious hepatitis, caused by a Vibrio organism, was recognized in the Province. A survey was conducted on live specimens received; this work involved gall bladder cultures and histopathological examination in liver tissues.

Leptospirosis in Cattle—To ensure that we will be aware of leptospirosis as soon as it enters Alberta cattle herds, some routine testing is being conducted on Brucella bloods. In addition to this, whenever there is any suspicion of leptospirosis in a herd, guinea pigs are sent to the attending practitioners who injects them with freshly-drawn urine of suspect cows. The animals are returned to the laboratory for further study. In this way, we feel we will be prepared for the first invasion of this serious disease which is already present in other parts of Canada and the United States.

Breeding—On behalf of the National Committee on Infertility of Dairy Cattle, a survey of cattle in Alberta, Saskatchewan and British Columbia was undertaken to ascertain the correlation between breeding efficiency and high and/or low production.

Cattle Brands—For forensic purposes, a series of cattle brands were applied and studied. The average healing periods were determined and the characteristics of altered brands examined.

Mink Distemper—A distemper outbreak at whelping time in a concentrated mink-raising area, presented a hazardous situation. Vaccination was carried out despite the fact that some females were in the middle of whelping when inoculated. Three trips were made to the area, and detailed information gathered on the effects of vaccination at this time, and the termination of the outbreak. A report on these facts is to be published.

Experimental Surgery—In co-operation with the Heart-Lung Surgical Unit of the University Hospital, assistance was given in preliminary arrangements for experimental work on premature animal feti.

Certified Swine Health Herd Plan—Considerable time has been spent in preliminary work on this program, and on examination of specimens obtained at packing houses.

Encephalomyelitis in Suckling Pigs—An encephalomyelitis condition in a group of suckling pigs was investigated, in which 7 sows lost 107 out of 114 piglets. Two later litters were not affected.

Atypical Cowpox—A number of trips and considerable time was spent on an atypical outbreak of cowpox in a dairy herd.

CURRENT DISEASE PROBLEMS

Vital Statistic Reporting

To complement information gathered from laboratory submissions and contacts with livestock owners, a comprehensive system of morbidity and mortality reporting is maintained.

Monthly vital statistic returns from twenty-five veterinary practices were processed covering calls to 13,335 premises; representing 30,725 animals requiring veterinary attention.

For statistical purposes, disease conditions are classified as nutritional, parasitic, infectious and miscellaneous. The relative importance of each is shown in the following table:

	Nutritional	Parasitic	Infectious	Miscellaneous
Cattle	8%	2%	35%	55%
Swine	20%	15%	55%	10%
Sheep	20%	26%	35%	19%
Horses	2%	3%	48%	47%

LABORATORY FINDINGS

(1959 figures given in brackets.)

Cattle

Clostridium perfringens infections and enterotoxemias were the most frequently diagnosed diseases with a combined total of 144 cases (150). More intensive feeding methods may be part of the reason for the increase in cases in recent years. More research is required on animal infections by this organism to bring to light more effective control measures.

Mastitis continues to be a very serious problem in dairy herds, with 104 cases diagnosed (129).

Bovine Vibriosis is becoming more prevalent as a cause of abortions and reproductive failures. Examination of 233 foeti showed 13 positive for Vibrio (8) and 13 Positive for Brucella (19).

Pneumonias and Pasteurellosis in feeder cattle and calves took a heavy toll of Alberta cattle with 73 cases (72).

Swine

Oedema Disease was the most frequently diagnosed condition with 64 cases (151). The increase in this disease in recent years may also be partly due to more intensive feeding practices.

Swine Erysipelas, a reduction in the number of cases to 46 (85) was encouraging, and probably indicates that more widespread use of vaccine may reduce the incidence of this disease further.

Mulberry heart disease, a condition of unknown cause, reached more serious proportions with 14 cases (3). Research is needed before very helpful control measures can be advised to control these losses.

Escherechia coli infections causing scours and generalized infections in young pigs were again numerous with 33 cases (24).

Anemia with 28 cases (44), **pneumonia** with 74 (125), nutritional gastro-enteritis and other diseases due primarily to faulty management were common.

Sheep

Enterotoxemia due to Clostridium perfringens was diagnosed 15 times (33).

Pneumonias and Pasteurellosis were found 20 times (25).

Intestinal worms of various types also caused serious losses in sheep.

Mink

Distemper caused great concern this year, with outbreaks on 14 ranches (16).

Virus enteritis appeared in Alberta for the first time, with the outbreak being confined to one ranch.

Poultry

Unidentified poultry diseases were a major source of loss in poult and chick flocks this spring. These include 141 (132) cases of **Air Sac Infection** in poults, and 247 (143) cases of **Respiratory Disease** in baby chicks. There is some suspicion that one or both of these may be associated with Chronic Respiratory Disease, but this has not been proven here.

Chronic respiratory disease—prevalent especially among broiler flocks, was diagnosed in 42 (48) cases.

Psittacosis or ornithosis—a disease transmissable to humans, was diagnosed for the first time in 2 flocks of turkeys. Blood tests of other turkey flocks indicate that the infection may be quite widespread. Psittacosis was again diagnosed in 7 (5) groups of imported budgerigars.

Paratyphoid caused by Salmonella organisms, was diagnosed in 61 (107) turkey poult flocks and 36 (29) chick flocks.

Fowl Typhoid is still confined to the "fowl typhoid endemic" area east of Edmonton. It was diagnosed from 14 (18) farms.

Pullorum—No pullorum isolations were made from turkey poults. There were 13 (24) isolations made from baby chicks.

Avian tuberculosis a preventable disease, but causing many losses and condemnations, was found on 70 (102) farms.

Leukosis—a world wide killer of poultry was diagnosed on 121 (142) farms.

Newcastle disease and fowl pox Although many tests were conducted, no isolations were made.

CORRESPONDENCE AND COMMUNICATIONS

This is an important aspect in getting the diagnostic information back to veterinarians, livestock owners, etc. to hasten proper control measures and to expedite functions of the Branch generally. The following table shows the breakdown.

Letters	17,000	Telegrams	400
New releases	21	Radio interviews	6
*Scientific papers	6	Film showings	35
Colored transparencies	70	Photographic prints	100

Bulletins distributed—several thousands.

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*The papers published in scientific journals were: (1) The Veterinarian and Civil Defence by Dr. E. E. Ballantyne; (2) A Re-Evaluation of Blood Coagulation in Chickens by Dr. C. H. Bigland; (3) Salmonella Pullorum in Turkeys—Experimental Testing in Natural Infection by Drs. C. H. Bigland, H. C. Carlson and G. R. Whenham; (4) Identical Fibro-sarcomata in Two Mute Swans by Drs. H .C. Carlson and F. E. Graesser and (5) Bovine Pulmonary Emphysema by Dr. J. G. Donoghue.

The photographs, etc. art for reference use, illustrations in scientific publications, and lay and scientific meetings.

Most of the bulletins are distributed by the Extension Branch.

Report of the Schools of Agriculture and Home Economics and 4-H Club Programme

J. E. HAWKER, B.Sc., B.A., Superintendent

J. E Birdsall, M.Sc., Principal, Olds School
N. N. Bentley, B.Sc., B.A., Principal, Vermilion School
V. W. Osbaldeston, B.Sc., B.Ed., Principal, Fairview School
C. L. Usher, B.Sc., Supervisor, 4-H Clubs

For the 1959-60 term, graduation exercises were held at the Olds and Vermilion Schools on April 6th, 1960. On this date, Diplomas of Graduation were presented as follows:

	Olds	Vermilion	Total
Diplomas in Home Economics	10	11	21
Diplomas in Agriculture	62	54	116
Total	72	65	137

The total of 137 graduates is sixteen above that of the total number graduating in 1959.

The annual conference for teaching staff at all Schools was held at the Olds School October 4th, 5th and 6th, 1960. The Honourable E. W. Hinman, Provincial Treasurer, addressed the conference on "The Place and Function of Schools of Agriculture". The Superintendent discussed the present status and possible future of the Fairview School as well as reviewing policies and regulations with respect to all three schools.

In 1960 there were eleven teaching staff changes. Five left to take other employment, two left for domestic reasons, two were additions resulting from greater staff requirements to handle electives, one appointment was made because of the imminent retirement of an instructor, one transferred to the reopened school at Fairview.

The Fairview School reopened on a trimester basis September 1st, 1960. In co-operation with the Fairview School Board and the Department of Education, required high school subjects at the Grade X, XI and XII level were made available to students resident at the Fairview School of Agriculture which has been termed tentatively the Fairivew Community College. Notwithstanding plans to the contrary, the government could not see its way clear to rebuild the shops and gymnasium at the Fairivew School, destroyed by fire March 8th, 1958.

Board of Agricultural Education

(a) General

The annual meeting of the Board was held at the Olds School of Agriculture, March 14th, 1960. In the absence of Hon. L. C. Halmrast, Mr. R. M. Putnam reported that the government had made no specific decision with regard to the Fairview School. He stated that a questionnaire was being used in an effort to determine the potential enrolment if the school reopened.

After considerable discussion, the board members agreed to retain the present Grade IX standing as a basic entrance requirement for the two year course with the stipulation that every consideration would be given to older applicants with less than Grade IX standing.

The board concurred in the statement that greater liaison should be developed between the Department of Education and the Department of Agriculture with a view to closer integration between schools of agriculture and public schools program.

The Liaison Sub Committee of the Board was asked to give further study to (a) apprenticeship training on approved farms particularly for student applicants with specific interests or weak farm background; and (b) employment placement service for graduates of the schools.

The Students' Assistance Act, passed in July, 1959, was discussed as it applies to Schools of Agriculture and Home Economics. During the 1959-60 term, assistance to students at the schools was as follows:

Total Loans	$3,275.00
Portion of Total Loans Remitted	785.00
Prizes ($50.00 each)	750.00

Implications of the Report of the Royal Commission on Education for Schools of Agriculture were discussed at length. It was felt that further consideration of the question would not be too fruitful until the government had stated its position with regard to the concept of Community Colleges.

The 1960-61 Term

With the reopening of the Fairview School September 1st, 1960, for academic students and the commencement of agricultural and home economics (1st year only) courses October 24th, 1960, there was a redistribution of students but the same total enrolment was reached as for the previous year plus the academic students at Fairivew.

Enrolment figures at the opening of vacational classes on October 24th, 1960, were as follows:

	Olds	Vermilion	Fairview	Total
Agriculture				
1st Year	50	40	23	113
2nd Year	35	49	......	84
Two-in-One	42	27	......	69
Sub-Total	127	116	23	266
Home Economics				
1st Year	7	6	9	22
2nd Year	6	8	......	14
Two-in-One	6	7	......	13
Sub-Total	19	21	9	49
Vocational Total	146	137	32	315
Academics	......	......	32	32
Total	146	137	64	347

Total enrolment in 1959-60 term was 313.

Maintenance and Construction

Notwithstanding the fact that plans were drawn and ministerial announcement made that shop facilities destroyed by fire at Fairview would be rebuilt in 1960, no construction was undertaken. Major maintenance items included replacement, with a concrete chase, approximately 300 feet of badly deteriorated wooden steam chase, replacement of corroded steam and waterlines and renovation of the poultry house, dairy and beef barns.

At the Vermilion School no major construction jobs were undertaken. Major maintenance included extensive remodelling of the hog barn and moving and remodelling of the sheep barn.

At the Olds School the new dairy building was nearing completion at the year end. A pole frame hay shed was completed and one bunker-type silo was started. Major maintenance items included installation of 35 combination metal windows in the school residence, laying of a tile floor in the dining room, improved lighting in several classrooms, remodelling of one hog barn, waterline replacement, and increased fire fighting equipment as well as building renovations in conformity with recommendations from the Fire Commissioner's office.

Summer Program

The heavy demand for the use of facilities at schools of agriculture by a variety of organizations continued in 1960. Several bona fide requests had to be refused because of lack of room or insistence on specific dates.

No summer program was carried out at Fairview for lack of auditorium facilities. At both the Olds and Vermilion Schools regular summer programs included Farm Women's Week, a total of four one week periods for 4-H Club members, and a three day teaching staff conference at the Olds School. In addition, some of the other groups accommodated were: A.W. Girls' Club Week, Cultural Activities Branch Band Clinic and Choral Directors' School, District Agriculturists' Short Course, Provincial Seed Cleaning Plant Operators' Conference, Fire Officers' Courses, 4-H Leaders' Conference, Public School Teachers' Convention, and others.

Appreciation

Again, the work of the schools received very liberal support fram a large number of commercial companies, individuals, farm and other organizations. A large part of this support was in the form of bursaries, scholarships and prizes. The Department wishes to thank all of these contributors most sincerely.

Officials of the Federal Government and the University of Alberta have been most helpful in giving various aid to the schools. Their assistance is gratefully acknowledged.

Continuing programs of active alumni associations at each school have been carried out. This is very much appreciated.

During the past year, the complete co-operation of the principal and staff members at each school has been most gratifying.

OLDS SCHOOL OF AGRICULTURE AND HOME ECONOMICS

The School enjoyed a very satisfactory year in most respects. Enrolment was at capacity in Agriculture but continued low in Home Economics; the level of education of students was at least as high as in any previous year; the school facilities were used more extensively than in most previous years; a very heavy program of maintenance was undertaken and most of it was completed; farm production reached a very high level.

The loss by fire on February 1st of the building which had served as a livestock pavilion and plant science classroom since 1913 created space and facility problems for the balance of the spring term and again at school opening in the fall.

Student behaviour was generally good. However, one boy was suspended for theft and three for liquor offences during the spring term. These were not allowed to return. One girl was suspended for two weeks for misbehaviour.

Special Lectures and Visitors

Two specialists gave courses of several days duration in January. Mr. Norman S. Thomson, District Irrigationist with the Irrigated Land Development Staff at Taber, lectured to Second Year and Two-in-One Agriculture students on irrigation. Dr. J. G. O'Donoghue, Extension Veterinarian, gave a series of lectures in Veterinary Medicine to the same students.

Special speakers who visited the School to give one lecture each included Dr. C. F. Bentley, Dean, Faculty of Agriculture, University of Alberta; Mr. J. G. Stothart, Superintendent, Experimental Farm, Lacombe, with members of his staff; Mr. Stanley Hughes, Eastern Rockies Forest Conservation Board, Calgary; Mrs. O. M. McKenzie, National Employment Service, Calgary.

Graduation

At the closing exercises held April 6th, 1960, Dr. W. H. Swift, Deputy Minister of Education, delivered the address to the graduating class. Robert Richmond of Hinton, a second year agriculture student and President of the Students' Union, was valedictorian. Mr. S. S. Graham, Extension Director, represented the Department of Agriculture. A Surplus Wheat Board University scholarship was awarded to Arnold Rand of Innisfail. Prizes for proficiency in various fields were awarded to sixteen graduating students.

Diplomas of graduation were awarded as follows:

	Second Year	Two-in-One	Total
Agriculture	27	35	62
Home Economics	5	5	10
			72

Industrial Arts and Home Economics Courses for Junior High School Students

An agreement was entered into with the Olds School Division to provide facilities and services of instructors to teach woodwork and home economics to pupils in grades 7 and 8. This was carried out from September 1st to October 15th, 1960, and it is planned to continue it during the period April 17th to June 30th, 1961. Seventy-nine girls took home economics and seventy-eight boys took woodwork. Instructors were Miss Gwen Daley and Mr. G. B. Harrison, both of the Olds School of Agriculture staff.

Special Events

The Little Royal and Achievement Day was held on Saturday, March 26th, 1960. Over 2,500 people attended the Little Royal and about 600 the Dress Review from which more were turned away for lack of space. Judge of the Little Royal was Mr. Charles Gordon, Livestock Supervisor.

A summer Alumni Reunion was held on August 5th. About 300 people attended this function which consisted of an afternoon program, buffet supper, annual meeting and a dance. The classes of 40, 25, 10 and 5 years ago were specially honored.

The fall Alumni dance was held on November 18th with approximately 250 in attendance.

On Saturday, March 5th, a Schools of Agriculture dinner and dance was held at Lacombe starting as a modest effort it developed into a very large gathering with about 700 in attendance.

Other Events

The following is a list of other functions held at the school during 1960:

Month	Event	Attendance
April	4-H Leaders' Conference	40
April	Provincial Horticultural Meeting	40
April	Womens' Institute Constituency Tea	100
June	Womens' Institute Constituency Conference	80
June	F.U.A. District No. 10 Convention	150
July	Alberta W.I. Grls' Club Conference	120
July	Farm Women's Week	85
July	Provincial Association of Co-operative Seed Cleaners	75
July	First 4-H Club Week	190
July	Second 4-H Club Week	155
August	4-H Club Eliminations	260
August	Band Clinic	75
August	District Agriculturists Training Course	40
August	Drama Seminar	55
October	Staff Conference	35
October	C.G.I.T. Leaders' Conference	105
October	4-H Leaders' Conference	130
		1,735

In addition to the events listed above there was a large number of one day, afternoon or evening gatherings including 4-H rallies and field days, group picnics and other such events. These together with the events listed above and the Little Royal and Achievement Day account for at least 6,000 people coming to the school in organized groups during the year.

The facilities were also used by the District Agriculturist and District Home Economist for weekly farm management classes for farmers during January, February and March.

Summer Activities of Teaching and Administrative Staff

W. C. Kirk, Agricultural Engineer, Extension Service
H. J. Armstrong, Fieldman, Field Crops Branch
J. P. Tait, Fieldman—Apiary Inspection, Field Crops Branch. Transferred to Fairview September 30th.

Grounds and Plots

An extensive program of improvements to grounds included major changes in front of the dormitory to provide a through drive, parking space, and a deeper planted area between the front of the dormitory and the driveway. The area behind the dormitory was improved. The student parking lot was widened and improved and a new playing field south of the dormitory was seeded to grass.

In the plot area co-operative tests for forage crops and cereal varieties were carried for the Experimental Farm at Lacombe. Cultural tests were also carried for the same institution. A co-operative potato disease test was grown for the Department of Plant Science at the University of Alberta. The plot area was also used for the production of vegetables for the dormitory, breeders' seed of Olds Creeping Red Fescue and classroom material of grasses, legumes, cereals and vegetables.

Maintenance Program

Special projects included the laying of tile on the dining room floor and the installation of 35 combination windows in the dormitory building. The wiring of this building was surveyed by the Department of Public Works and necessary materials ordered for rewiring.

Improved lighting fixtures have been installed in several classrooms to meet approved standards. Fire protection equipment has been supplemented to meet recommendations of the Fire Commissioner. For the same reason an enclosed outside entrance and stairway to upstairs classrooms in the Mechanics Building were built. At the same time changes were made to provide two large upstairs classrooms instead of one large and two small ones in the Mechanics Building.

The remodelling of one hog barn to provide better and more modern facilities was underway at the end of the year.

The program of water line replacement was completed with new lines to farm buildings being laid. Necessary fire hydrants were installed at the same time. Connection of town water lines to the pump house to provide an alternate source of water was also completed.

Public Works Construction

One pole frame hay shed was constructed and a bunker-type silo was partially constructed and will be completed in the spring. The dairy building including a classroom, loafing barn and milking parlor was in the process of completion by the Department of Public Works at the end of the year.

The School Farm

A fairly good crop year was experienced during 1960. Rainfall was normal during the early part of the summer to give excellent growing conditions but the latter part was quite dry. The first cutting of hay was of excellent yield and quality but dry conditions later resulted in little growth of hay and pasture. Harvesting conditions were ideal and good crops were harvested. No hail was experienced during the growing season.

The crops grown and yields were as follows:

Crop	Acreage	Yield
Barley	115	5,200 bus.
Oats	65	4,500 bus.
Hay	165	165 tons
Pasture	135*	......
Silage	10	40 tons

*Includes pasturing 65 acres of hay fields after first cutting.

Livestock

Livestock purchased during 1960 included a Shorthorn bull, Yorkshire boar and 5 Suffolk ewes.

A fairly successful year may be reported. Pastures held up reasonably well and the stock came into winter in good condition.

The following table shows the numbers of livestock on hand at December 31st, 1960.

Holstein-Friesian	36
Shorthorns	52
Suffolk Sheep	106
Yorkshires	95
Poultry	250

Farm Sales

The farm sales for 1960 (estimated for December) were as follows:

Milk and cream	$ 5,600.00
Eggs	920.00
Meat to Dormitory	1,700.00
Animals (for slaughter and breeding)	7,500.00
	$15,720.00

The 1960 Fall Term

Registration by classes was as follows:

	Agriculture	Home Economics	Total
First Year	50	7	57
Second Year	35	6	41
Two-in-One	42	6	48
	127	19	146

By the end of the term the number of students in Agriculture was reduced by 7. One boy from B.C. left for personal reasons and 6 boys were suspended as the result of a liquor offense.

Late appointment of two staff members created problems and some inconvenience but this was dealt with satisfactorily. Student performance was on the whole superior to that of the same period in 1959.

Instructional and Administrative Staff for the Fall Term

J. E. Birdsall, M.Sc.— Principal, Community Organization
Mrs. F. A. Hodgson, B.A.——Dietitian
Miss A. Heffernan, R.N.—School Nurse, Home Nursing
R. P. Warrington, F.R.G.S.—Dean of Men, English
R. Everett— Supervisor of Recreation, Assistant Dean of Men
Miss G. Daley, B.Ed.—Dean of Women, Clothing, Textiles, Laundering
Miss E. Sokoluk, B.Sc.—Foods, Apartment
Mrs. E. Clarke, B.Sc.— Home Management, Handicrafts, Home and Family Living
H. J. Armstrong—Metalwork
W. C. Kirk, B.Sc.—Machinery and Motors
R. Hamilton, B.Sc.—Assistant Mechanics
G. B. Harrison, B.Sc.— Buildings, Maintenance Supervisor
S. B. Wilton, B.Sc.—Animal Science, Farm Manager
H. W. Sutherland, B.Sc.— Farm Management, Animal Science elective
G. A. Ogston— Farm Foreman, Animal Science
W. Collin, B.Sc.—Field Husbandry
W. Baranyk, B.Sc., B.Ed.—Horticulture, Botany and Field Husbandry
O. Oxtoby, B.Sc.—Science and Entomology
J. I. D. Mathieson—Typing, Record Keeping and Mathematics
Mrs. B. Brown—Librarian
D. G. Robb—Accountant
Miss D. M. Hoel—Secretary
Mrs. D. Sutherland— Stenographer

VERMILION SCHOOL OF AGRICULTURE AND HOME ECONOMICS

The 1959-60 Term

Enrolment reached a peak in the 1959-60 term with 163 students registered at the beginning of the term in 1959. In October, 1960, a total of 137 students enrolled. A decline in the First Year Classes has occurred.

Enrolment has remained stationary in the "Two-in-One" Class.

A normal programme of classes and extra-curricular activities was carried through with notable success.

Visitors and Guest Speakers

Visitors and guest speakers who addressed students included principally Department of Agriculture officials, members of the Faculty of Agriculture at the University of Alberta, and subject matter Specialists from the Dominion Experimental Farm Services.

Special Events

Established special events which brought large numbers of visitors to the School included the V.S.A. Alumni Re-Union, Parents' Weekend, a district High School Basketball Tournament, the "Little Royal", and Graduation Exercises.

Mr. W. H. T. Mead, Livestock Commissioner and Mr. V. T. Janssen, Assistant Supervisor of 4-H Clubs, were Guest Judges at the "Little Royal".

Graduation

Graduation Exercises were held on April 6th, 1960, at which time Dr. McCalla delivered the Graduation Address and Mr. J. E. Hawker represented the Department of Agriculture.

Diplomas of Graduation were awarded as follows:

	Agriculture	Home Economics	Total
Two Year Course	30	4	34
"Two-in-One" Course	23	7	30
	53	11	64

Winners of **Scholarships** for distinction in various fields were:

Vermilion Chamber of Commerce—Terrance Vickerson, Sexsmith
General Proficiency—David Chivers, Ioco, B.C.
Plant Science—Fred Brook, Vermilion
Farm Mechanics—Louis Holtz, Beaverlodge
Animal Husbandry—Ronald Clennin, Bawlf
University of Alberta—Wendell Lund, Hughendon
General Proficiency (Home Economics)—Ethel Brown, Corievale, Sask.

Winners of the **Staff Medals** were:

Hartmann Nagel—Woking
Laurie-Anne Campbell—Edmonton
Leslie Head—Grande Prairie
Faye Paradis—Ribstone

Summer Short Courses

Main features in the Summer Programme were:

June 20-25—Fire Officers' School
July 11-15—4-H Club Week
July 18-21—Farm Women's Week
July 25-30—Boys' and Girls' Summer Short Course and Fair Camp
Sept. 19-20—Fire Officers' School
Sept. 26-30—Fire Officers' School

In addition to these week-long programmes, a number of meetings and conferences by various groups and organizations were held at the School.

Employment of Staff During the Summer

J. A. R. Palin, L. G. G. Seath, K. M. Stone, M. Gratz, B. J. Godwin and Mrs. L. C. Johnson engaged in other work for the Department of Agriculture, with various Branches. Miss Reason transferred to secretarial work at Headquarters.

K. M. Stone, in addition to his other duties, continued regular production of the weekly fifteen-minute radio programme "The

Halls of V.S.A." which is now in its fourth year, on C.K.S.A., Lloydminster.

N. N. Bentley, Principal, took leave of absence in October for one year to work with U.N.T.A.B. in Iraq.

Maintenance

The normal maintenance and repair program was carried on by the regular staff under W. B. Olson. Remodelling of the hog and sheep barns were additional major undertakings.

School Grounds and Field Crop Plots

The normal program in this section of the work was continued under the part time supervision of Mr. B. J. Godwin.

The School Farm

The 1960 crop year was favourable producing average or better yields for this area.

Crops Produced Were:

Crop	Acres	Yield
Wheat	15	650 bus.
Oats	67	4,864 bus.
Barley	32	2,346 bus.
Hay	90	150 tons
Greenfeed and Silage	64	....
Fallow	40	....
Pasture	78	....
Breaking	32	....
	416 acres	

Farm Sales to the Campus and Dormitory for the year were:

Milk and Cream	Nil
Eggs	$ 1,050.75
Meat	1,110.05
Vegetables	215.19
Total Farm Sales amounted to	$17,951.64

The Livestock inventory as of March 31st, 1960, was:

Dairy Cattle	44
Feeder Cattle	16
Horses	2
Swine	55
Sheep	86
Laying Hens	422
Brooder Chicks	317

The 1960-61 Fall Term

Enrolment at the opening of the term was as follows:

	Agriculture	Home Economics	Total
First Year	40	6	46
Second Year	49	8	57
"Two-in-One"	27	7	34
	116	21	137

By the end of the Fall Term there were no withdrawals from any class. One student in the "Two-in-One" Class in Agriculture and one student in the "Two-in-One" Class in Home Economics were required to transfer to respective First Year Classes.

Choice of Electives

Agriculture	
Advanced Animal Husbandry	17
Advanced Automotives	16
Advanced Welding	16
Advanced Farm Building	16
Miscellaneous Electives	11
Home Economics	
Advanced Clothing	7
Advanced Foods	8

Teaching and Administrative Staff

J. A. R. Palin, B.S.A.—Acting Principal, Employment Training, Community Organization, Public Speaking
*D. C. Folk—Farm Building
G. A. Boggs—Farm Building
K. M. Stone, B.Sc.—Field Husbandry
B. J. Godwin, B.Sc.—Botany, Horticulture, Field Husbandry
J. F. Harcus, B.Sc., B.Ed.—Manager of School Farm, Instructor in Animal Husbandry
R. M. Gratz, B.Sc.—Dairy and Poultry, Animal Husbandry
A. Bezooyen—Recreation Director, Dean of Men's Residence
J. K. MacKenzie, B.S.A.—Farm Motors
R. Forrest, B.Sc.— Farm Machinery
W. B. Olson—Supervisor of Maintenance, Metalwork
L. G. G. Seath, B.Sc.—Farm Management
G. C. Boulet, B.Sc.—Science
Mrs. L. C. Johnson—Clothing, Handicrafts
Miss J. Haworth, R.N.—Dean of Women's Residence, School Nurse, Home Nursing
Mrs. J. Wright, B.Sc.— Home Management
Mrs. M. Harcus—Foods
Miss H. Reason—Typing, Record Keeping, Staff Stenographer
Mrs. E. C. Parlee—Dietitian
Mrs. K. I. Bell—Secretary
H. Cooper—Accountant

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*Deceased, December 20, 1960.

FAIRVIEW COMMUNITY COLLEGE

General

When the Fairview Community College, formerly the Fairview School of Agriculture and Home Economics was re-opened September 1st, 1960, arrangements were made to accommodate academic students. The academic students were domiciled at the "College" and received instruction at the Fairview High School. The Fairview High School was operated on the trimester system so as to accommodate many students who had only two or three deficiencies.

Difficulties were experienced due to lack of facilities to handle the number of students enroled. Sufficient room to provide for the extra-curricular activities was not made available. The training in mechanics that the vocational students were promised when the school opened was not provided due to lack of a mechanics building. By offering the vocational training on a trimester basis work was carried forward. This means that some second year work was taught in the first year.

To increase the enrolment, other courses could be added as indicated by the enquiries that were received. A need was shown for commercial training and mechanical training in particular.

Enrolment for next year appears encouraging since two applications and several enquiries for 1961 were received in early December.

Special Lectures and Visitors

During the 1960 term Dr. Hugh Vance, Veterinary Laboratory, Edmonton, and Mr. A. R. Reddon, Animal Husbandman, Beaverlodge Experimental Station, were guest lecturers. Mr. C. A. Cheshire, Supervisor of District Agriculturists, Edmonton, was guest speaker at the Christmas Closing banquet.

Graduation

There were no graduation exercises in 1960.

Special Events in the 1960 Term

The Christmas Closing banquet was held December 22, 1960 with 46 guests in attendance. The total attendance was approximately 120 people.

On Saturday, October 15th, 1960, the Alumni held a successful supper and social evening with about 120 alumni people in attendance.

On August 31st, 1960, the school was host to 34 members of the Legislature who were touring the Peace River country. During the day they had attended the opening of the Dunvegan bridge. A framed, colored photograph was presented to the school by the visiting M.L.A.'s.

Schedule of Other Functions

The local 4-H Beef and Grain Clubs have held several meetings and two successful judging competitions in the stock pavilion during the year. Several other organizations held meetings at the School as indicated below:

Month	Event	Attendance
June	Bridge Opening Conference (Hon. G. E. Taylor)	65
July	4-H Beef Judging Competition	40
August	A.I.C. Meeting	45
October	Alumni Reunion	120
November	F.W.U.A. Conference	40
December	Peace River Planning Commission	45

Grounds and Plots

Some 250 larch were planted in the wood lot in early spring.

Maintenance Program

Most of the classrooms and the staff houses including the three houses downtown were repainted. The stuccoing was completed on house 18 on the campus. General repairs to electrical equipment were carried out. Much of the galvanized piping in the various buildings was replaced with copper piping. A major break in the main water line was repaired.

The School Farm

During the spring heavier than average rainfall was experienced at Fairview. However, high winds during that time contributed to above average evaporation. Precipitation ceased in mid-June, and no more fell until the first snows of October. This lack of summer precipitation coupled with high winds and extremely hot weather throughout the summer contributed to low crop yields. The lowest yields were obtained in hay and pasture. Grain ripened early and showed small kernels.

The dry summer continued through late fall, and harvest conditions were excellent.

Field Crops

Crop Grown	Acreage	Yield	Condition
Hay	114	57 tons	Good quality.
Oat Silage	22	22 tons	Well preserved but low quality due to dusty conditions.
Barley	44	1,100 bus.	Good quality, small kernel size, good condition.

Livestock on the Farm—December 31, 1960

Aberdeen Angus	12 cows and heifers 10 calves (4 bulls, 1 steer, 5 heifers)
Holsteins	10 cows milking 1 cow dry 7 calves 1 bull
Poultry DeKalb 101	196 laying hens

Farm Sales—1960

Livestock	$2,982.58
Milk	1,271.32
Eggs	108.47
	$4,362.37

The 1959-60 Term

Enrolment at commencement date for various courses was as follows:

	Sept. 1	Oct. 24	Dec. 12
Academics	28	28	39
Agriculture	0	23	23
Home Economics	0	9	9
Total	28	60	71

At the end of the first quarter of the trimester there were 7 academic students left and 18 more registered for the second quarter giving a net gain of 11 students.

The Fairview Community College wishes to express appreciation for the support given by the Alberta Wheat Pool, the United Grain Growers, the Canadian Legion, the Winnipeg Grain Exchange and the Government of the Province of Alberta for the many bursaries made available to both the academic and vocational students.

Appreciation to all the many individuals and businesses is also expressed for the assistance and co-operation received in getting the school into operation for the 1960-61 term.

Attention is drawn to the fact that the Fairview College has been operating on the trimester system in the academic and vocational courses. From our limited experience it is felt that this system is working out very satisfactorily. There seems to be more sustained student interest with less subjects at any one time and more continuity in each subject. Students and staff both seem pleased with the system.

Instructional and Administrative Staff

V. W. Osbaldeston, B.Sc. (Eng.), B.Ed.—Principal, Community Organization, and Maintenance Supervisor
J. T. Lancaster, B.Sc.—Field Husbandry and Farm Management
L. T. Jones, B.S.A.—Farm Manager and Animal Husbandry
J. H. Warne, B.Sc.—Dean of Men, English and Mathematics
J. P. Tait, B.Sc.—Science and Mathematics
C. N. Freeman, B.S.A.—Horticulture and Botany, Grounds Supervisor
K. J. MacDonald, B.S.A.—Dairy (part-time)
G. E. Patsula, B.Sc.—Poultry (part-time)
Miss N. I. Semotiuk, B.Sc. (H.Ec.)—Clothing, Home Management
Miss T. Graham—Dietitian, Dean of Women, Employment Training
Mrs. E. P. Moran, R.N.—Nurse and Home Nursing, Laundering
Miss M. L. Scott—Secretary and Typewriting
A. D. Parkkari—Accountant
Mrs. W. Bartlett—Librarian

REPORT OF THE 4-H CLUBS

C. L. USHER, B.Sc., Supervisor

Priscilla A. Mewha, B.Sc.(H.Ec.), Associate Supervisor
V. T. Janssen, B.Sc., Associate Supervisor
Mrs. R. Stevenson, B.H.Sc., Assistant Supervisor
S. Fraser, B.Sc., Assistant Supervisor

Staff

Several changes in permanent staff took place during the year. On May 1st Stuart Fraser joined the staff as Assistant Supervisor. September 15th Miss Nancy Pasochnik transferred to the Extension Branch as Clothing Specialist. Mrs. R. Stevenson came on staff as Assistant Supervisor on December 1st.

Again, additional staff was added this year for the period May through September. Those employed included: Miss Pat Semeniuk, Miss Joy Johnson, Mr. Robert Church, Mr. Blair Shaw, Mr. Sam Harbison and Mr. Murray Gratz. All this staff had headquarters in Edmonton except Mr. Gratz. He was stationed at Vermilion and worked only in the Vegreville, Vermilion, Wainwright, Two Hills, St. Paul and Bonnyville areas. This was a new experiment in offering additional assistance in the field and one which proved reasonably satisfactory. Miss Jean Sokoluk of the Olds School of Agriculture assisted in the homemaking projects during September.

A program involving the use of junior judges at 4-H livestock shows initiated in 1959 was continued again in 1960. Through this program, training in judging was given seven young men out of 4-H. In all cases the junior judges worked under senior men.

Administration and Conduct of the 4-H Program

About 50% of the time of the Supervisor and other members of the 4-H staff was taken up with general administration and supervision of the 4-H program. In addition to this 4-H staff members assumed direct supervision of clubs in areas where district extension offices were vacant.

Provincial 4-H activities conducted by the 4-H staff included: Club Weeks, Provincial Eliminations, Regional and Provincial 4-H Leadership Courses, the Provincial 4-H Dairy Show, the Provincial Junior Seed Fair, the Provincial and Inter-Provincial Thematic Display Competitions, the 4-H section of the Alberta Quick Freeze Locker Association and Alberta Dairymen's Association Conventions.

Other events in which the 4-H staff took a very active part included: The Canada-United States Exchange Program, National 4-H Club Week, the Alberta-Montana Exchange, University Farm Young People's Week, and Achievement Days.

A considerable portion of the time of the Supervisor was spent on national aspects of the 4-H Program. This included representing this Department as a director on the Canadian Council on 4-H Clubs, acting on the executive of this organization and assuming the duties of Chairman of the Agricultural and Exchange Visits Committees of the Council. He also attended the Natitonal 4-H Conference in Washington, D.C., as one of the supervisors of the Canadian Delegation and later in the year National 4-H Club Week in Toronto and Ottawa.

The Supervisor and Associate Supervisors also participated on the committees of the "A" class fairs and in livestock and other association work.

The direct supervision of individual clubs and of the over-all club program within each district is the responsibility of the district agriculturists and district home economists.

Further substantial assistance in the 4-H program was given by head office personnel of the Extension Branch and by members of the Livestock, Field Crops, Dairy and Poultry Branches and the Schools of Agriculture. In all cases it was very much appreciated.

Assistance of Organizations

The change in sponsorship of field crops projects which was introduced in 1959 was continued in 1960. This involved the Alberta Wheat Pool, the United Grain Growers, and the Line

Elevators Farm Service jointly supporting these projects. Total value of sponsorship, apart from the value of assistance of staff, was $6,732.00.

The T. Eaton Co. of Canada provided awards for all clothing, foods, home decoration, beef, swine, sheep and poultry clubs. In addition they offered their support in connection with 4-H livestock sales and other events.

Substantial assistance through the year was also received from the livestock associations, service clubs, boards of trade, agricultural societies, exhibitions, banks and others.

All the above mentioned help added greatly to the 4-H program.

Federal Assistance

The contribution of the Canada Department of Agriculture to 4-H in Alberta is primarily a financial one. However, assistance is also given swine, dairy and sheep clubs through Federal Purebred Sire Policies.

Financially the Canada Department of Agriculture contributed $10,180.00 to the 4-H program during the 1959-60 fiscal year. This assistance was given through sharing equally with the province: the Federal Provincial grant to all clubs, the cost of certain specified supplies, leadership training expenses, provincial elimination costs, and some awards.

Through the Federal Purebred Sire Loaning Policy the following assistance is presently being given: four boars placed in 4-H clubs in 1960 making a total of 16 boars out in clubs; no rams were placed in 1960 but there is a total of 13 out in 4-H clubs; one dairy bull placed in 1960 making a total of seven out in 4-H clubs.

Field staff of the Federal Department assisted in judging at 4-H Achievement Days and in other like work. This assistance was very much appreciated.

Club Membership and Distribution

This past year club membership remained very close to that of 1959. Within individual projects increases were registered in the livestock and garden clubs. The sharpest decrease again was in field crops clubs.

4-H CLUB DISTRIBUTION IN ALBERTA, 1959-1960

	1959		1960	
Agricultural Projects:	No. of Clubs	Members	No. of Clubs	Members
Beet	158	2,766	165	2,884
Dairy	55	921	61	1,036
Swine	10	149	10	129
Sheep	4	74	6	97
Poultry	1	24	1	17
Potato	4	68	3	50
Field Crops	75	1,180	66	966
Total	307	5,182	312	5,179
Decrease (Agricultural Projects)				3 members
Increase (Agricultural Projects)				5 clubs
Homemaking Projects:				
Clothing	91	1,392	90	1,271
Garden	44	509	54	660
Food	19	224	20	260
Home Decoration	4	50	4	46
Total	158	2,175	168	2,237
Increase (Homemaking Projects)			10 clubs,	62 members
Total (All Projects)			480 clubs,	7,416 members
Increase (All Projects)			15 clubs,	59 members

Organized Club Activities

About 80% of all 4-H Club work is carried out at home. This includes work on individual projects, assignments and other such activities. Apart from this, club members in 1960 took part in organized 4-H activities as follows:

In Agricultural Projects

2,313 Regular Club Meetings
42 Club Rallies
310 Club Tours
251 Achievement Days
42 Leadership Courses
261 Special Club Meetings
Total organized 4-H activities 3,219
Total attendance (4-H members and other persons) 70,023

In Homemaking Projects

Total organized 4-H activities 1,927
Total attendance 17,287

In All Projects

Total activities 5,146
Total attendance 87,310

Leadership Training and Recognition

1. Leadership Training

(a) Regional Courses

A total of nineteen one day courses was held during the year. These were at the following points: Lethbridge, Medicine Hat, Brooks, Olds, Grande Prairie, Berwyn, High Prairie, Calgary, Drumheller, Hanna, Stettler, Viking, Wainwright, Vegreville, Smoky Lake, Lacombe, Camrose, Mayerthorpe, and Edmonton. Total attendance was 504 leaders and assistants. The program of each course involved the following: a study of local club problems, the co-ordinating of regional activities, and new techniques and ideas on programming.

(b) Provincial Courses

A two day Provincial 4-H Leaders' Course was held at the Olds School of Agriculture in April for the leaders of summer projects. Total attendance was 50. A similar course was held in October for the leaders of winter projects at which the attendance was 125. In each case the program was basically a study of the actual projects concerned. Those attending were guests of the Department of Agriculture and sponsoring organizations.

2. Recognition of Leadership

This year a 15 year Award Certificate was introduced to make a total of three certificates now available i.e. 5, 10 and 15 year. All certificates are given by the Canadian Council on 4-H Clubs. Total number of certificates presented in 1960 was as follows: thirty-seven 5 year, seven 10 year, and two 15 year. Besides the above, one leader, Mr. A. Bushfield of Balzac was honored on completion of 25 years leadership and Mr. C. Brinton of Vegreville on completion of 20 years.

4-H Club Weeks

One Club Week was held at the Vermilion School of Agriculture and two were held at Olds. Total attendance at the three weeks was 456 club members. The program consisted of a balance of work, recreational and social activities with considerable emphasis being placed on junior leadership.

Official visiting delegations to Club Weeks included the following: two girls from British Columbia to the week at Vermilion;

a group of 40 from Manitoba for two days at Olds along with the Montana delegation of two boys and two girls; and finally two boys from Saskatchewan at the remaining week at Olds.

Scholarships

1. Wheat Board Surplus Monies Trust Fund Scholarship

A total of 21 scholarships each to the value of $100.00 from the Wheat Board Surplus Monies Trust Fund were awarded at Club Weeks as follows:

Vermilion	
Girls' Section	1. Linda Stepenoff, Paradise Valley
	2. Diane Speight, Cairns
	3. Denise Dechaine, St. Lina
Boy's Section	1. Paul Sawchuk, Waskateneau
	2. Neil Hatch, Cherry Grove
	3. John Briggs, R.R.2 South Edmonton
Olds (First Week)	
Girls' Section	1. Maureen Young, R.R. 2, Calgary
	2. Audrey Everett, Box 282, Claresholm
	3. Fay Olson, Cranford
Boy's Section	1. Ron Hanson, R.R. 4, Calgary
	2. Ted Baker, Okotoks
	3. Allan Rand, Innisfail
Olds (Second Week)	
Girls' Section	1. Marilyn Smith, Endiang
	2. Margaret Hlavoy, Buck Lake
	3. Elizabeth Liddell, Mirror
Boy's Section	1. Gary Stordahl, Bawlf
	2. Frank Davies, Bow Island
	3. David Hueppelheuser, Blackfalds
Peace River Winners	
	1. Norman Costley, Box 68, Worsley
	2. Carol Moen, Badheart
	3. Darlene Ek, Deadwood

2. Other Scholarships

The following scholarships, the awarding of which was based, in part, on record in 4-H and other activities were awarded during the year.

(a) **Canadian National Exhibition Scholarship**—Value of $600.00—Miss Carrie Hornby, Ponoka.

(b) **Alberta Wheat Pool Bursaries** each to a value of $200.00 awarded to students in first, second and third year Home Economics at the University of Alberta. Winners: Third Year—Rosemarie Wenger, Egremont; Second Year—Alice Fraser, Clyde; First Year—Eileen Goedicke, Eckville.

(c) **Henry Wise Wood Memorial Scholarships** each to the value of $135.00 were awarded to 4-H members to attend a School of Agriculture. Winners were: Olds School of Agriculture—Lucille Marie Pollock, Calgary and Roger Butterwick, Brownfield; Vermilion School of Agriculture—Mungo Allan Forbes, Vermilion and Lloyd Roy Olsen, Bawlf; Fairview School of Agriculture— Douglas Walter Spry, Sexsmith and Hans G. Egge, Woking.

(d) **Two Edmonton Rotarian Scholarships** valued at $100.00 each were awarded to Farm Camp members at the Edmonton Exhibition. Winners were: Jane Moonen, Millet and Paul Sawchuk, Waskateneau.

Provincial Eliminations

1960 saw a record attendance of 260 4-H members at Provincial Eliminations. The competitions this year were broadened to include all phases of the projects and 4-H generally, with less emphasis being placed on judging. This change gave more recognition to those who had taken advantage of the many different phases of training offered through 4-H.

The results from Provincial Eliminations were as follows:

Project	No. of Members Competing	National Club Week Winners
Beef	107	Hazel Walker, Endiang Douglas Mackintosh, Granum Jack Olson, Red Deer
Dairy	29	Irma Ahrens, Red Deer Maureen Young, Calgary
Field Crops	27	Wendell Lund, Hughenden Garry Webber, Stony Plain
Sheep, Poultry, Swine and Potato	9	Terry Vickerson, Sexsmith
Clothing	38	Eileen Goedicke, Eckville Marian Renwick, Three Hills Judith Leslie, Mossleigh
Garden	30	Carrie Hornby, Ponoka Linda Stepenoff, Paradise Valley
Food and Home Decoration	20	Diane Speight, Cairns

The delegation selected to attend the Montana State 4-H Congress included: Diane Stuart, Clive, Bernice Gordeyko, Ohaton, Barry Campbell, Mossleigh, and Ron Hanson, Calgary. Miss Jessie Ingledew of Hinton Trail was named the Alberta representative to the National 4-H Conference to be held in Washington, D.C. in the spring of 1961.

Alberta-Montana 4-H Exchange

This was the fourteeth year of this exchange trip. The delegates from Montana who were our guests at Club Week at Olds included: Sam Meyagishima, Yellowstone, Carter Fritiz, Flathead; Marjorie Huffman, Gallatin; and Pat McKinley, Ravolli. These young people were accompanied by Mr. Herb DeVries, Extension Agent, Blaine County. The other half of the exchange involved the four Alberta members named at Provincial Eliminations to attend the State 4-H Congress at Bozeman, Montana, August 22-26th, 1960. This group was accompanied by Miss Priscilla Mewha, and Mr. Ken Walker, District Agriculturist at Strathmore. The group took part in the program at Bozeman which involved some 800 4-H'ers and their leaders.

Canada-U.S.A. Exchange Program

This was the second year of this new exchange program which is arranged and conducted by the Canadian Council on 4-H Clubs and the U.S. Federal Extension Service. Alberta's representative to the State 4-H Conference in Washington was Ken Copithorne of Springbank. The program at Washington, April 23rd-29th, involved 4-H delegates and extension personnel from every state in the United States.

National 4-H Club Week

This, as usual, was held in Toronto and Ottawa at the time of the Royal Winter Fair. A total of 140 delegates representing the ten provinces and eight delegates from the U.S.A. were in attendance.

The delegation from Alberta, made up of nine girls and five boys, was accompanied by C. L. Usher and Miss Edith Zawadiuk, District Home Economist, St. Paul.

Royal Winter Fair

A 4-H girl from Coronation, Irene Bullick took the World Championship in forage crop seeds with a sample of brome grass. This is the first World Championship in this section to be won by an Alberta 4-H member. Other winnings included: first in Spring

Wheat by Joan Deurloo of Granum, first in Early Potatoes by John Olson of Abee, and twelve other high place awards in the 4-H classes.

Camps, Rallies and Tours

Fair camps were held at Camrose, Vegreville, Vermilion and Edmonton while in Calgary a rural youth week camp was sponsored by the Calgary Exhibition and Stampede. Camps were also held at Elkwater, Buffalo Lake and Waterton Park. The theme at all camps was Citizenship. Total attendance was 690 boys and girls.

Winter rallies and banquets were again part of the 4-H program in many areas.

Provincial 4-H Delegate Reunion

A reunion of all former delegates to National 4-H Club Week, the Montana 4-H Congress and National 4-H Conference in Washington was organized by a committee of the University of Alberta 4-H Alumni Club working in co-operation with headquarters staff. This reunion was held at the Banff School of Fine Arts September 9th, 10th, and 11th. It attracted about 50 persons.

Educational Displays

The building of displays continued to be a popular secondary project for many clubs. These exhibits took the form of Thematic Displays and floats and were to be seen at all "A" and "B" class fairs as well as at numerous achievement days and smaller fairs.

The Provincial competition in Thematic Displays attracted eight entries in Edmonton and five in Calgary. The winner at Edmonton was the Thorhild Beef Club and at Calgary the East Longview Field Crops Club. These top two displays were entered in the Inter-Provincial Competition in Regina where East Longview placed first and Thorhild placed third.

Public Speaking

The year saw a great increase in the number of clubs participating in Public Speaking programs. Assistance was given by the staff with organization and sponsorship of public speaking in Southern Alberta. The winner of the Edmonton Exhibition Competition for northern Alberta was Jean Rosenthal of the Spruce Grove Garden Club.

Univerity 4-H Alumni

This group continued to be very active through the year. Membership reached a new high of 50—all former 4-H members attending various faculties at the University. Valuable suggestions concerning the 4-H program were passed on by this group to the staff. The 4-H staff participated actively in the program where requested.

4-H Club News

Three issues of this bulletin were published by the 4-H staff during the year. These were distributed to 4-H members and others connected with the program. Total distribution was 8,500 copies per issue. The material contained in the bulletin was directed basically to 4-H members.

Press, Radio and T.V.

These three media of communication again supported the 4-H program very strongly. A number of radio stations now carry regular 4-H programs and some weekly newspapers have a special column for 4-H news. Special activities are also now featured on T.V. programs. The Department's "Call of the Land" program and "Farm Notes" co-operated to the fullest extent in carrying reports of newsworthy activities of general interest.

AGRICULTURAL PROJECTS

Beef Clubs

Membership in the beef projects increased to a record high of 2,884. Part of this increase was brought about by interest in the two newly instituted senior projects, the 'pen of five' and 'beef breeding'. All three projects incorporated in one club is proving quite satisfactory. A summary of carcass grading reports for the year showed 90.2% graded choice and 8.2% good. This was an upward trend in grading from the year previous.

Dairy Calf Clubs

There was an increase of six clubs and 115 members in the dairy projects. This year, the increase, in addition to the high total number of clubs now active, maintained the heavy demand for calves supplied by the Livestock Branch through the Dairy Heifer Calf Policy. A regulation established in 1959 now limits the number of calves supplied to three per member and eight per family. This is proving a slight control on the number of animals requested. The total number of calves supplied in 1960 was 353.

The Alberta Dairymen's Association had as guests at their Annual Convention 39 members representing all dairy clubs north of Red Deer. Assistance with this group was given by the 4-H staff.

The Provincial 4-H Dairy Show held in conjunction with the Red Deer Fair attracted 59 exhibitors with 61 animals. This was a record entry for the show. Results were as follows: Junior Calf Class—4 entries, winner, Arthur Reitsma, Bentley; Senior Calf Class—33 entries, top placing Martin Stannard, East Edmonton; Yearling Class—24 entries, top placing Don Wright, Olds. Showmanship winner Douglas Bienert, Leduc. The assistance of the Alberta Dairymen's Association and the Red Deer Fair Board contributed greatly to the success of this show.

The Provincial Dairy Record Book Competition, open for the second year, drew considerable interest and focused attention on the keeping of good records. The winner for 1959 was Irma Ahrens of Red Deer and for 1960 Gordon Stoll, Grande Prairie. This competition is being sponsored by the Alberta Dairymen's Association.

Swine Clubs

Four projects are presently being offered in swine. However, only limited interest was again evident through the year. The assistance of the Canada Department of Agriculture in supplying boars and providing a carcass scoring service has added much to the project.

Sheep Clubs

A breeding and a feeding project were gain offered. The total membership was not high but there does appear to be considerable stability in the clubs that are active.

Field Crops Clubs

A study of the results of the first year's operation of the eight new projects established in field crops work indicated a desirability to delete two of the senior projects for 1960. These were: the two acre seed treatment project and the two acre seed treatment fertilizer project.

The new field crops projects made considerable appeal to club members and although total membership was down the results from the change are most gratifying.

Winners in the Provincial Plot Competition were: Junior Project—Shirley Chmilar, Berwyn; Intermediate Project—Beth Waters, Morrin, and Senior Project—Darryl Smith, Bow Island.

The seventeenth Provincial Junior Seed Fair was held in conjunction with the Calgary Chamber of Commerce Seed Fair and Short Course. There was a total of 104 samples entered in the 11 classes.

HOMEMAKING PROJECTS

Garden Clubs

Continued interest has been shown in the garden project. This year there was an increase in clubs of ten from the previous year making a total of 54 clubs.

All garden plots were judged by the District Home Economist or headquarters staff with assistance from the Alberta Wheat Pool Fieldmen or District Agriculturists.

The Alberta Wheat Pool awarded prizes for the best garden plot in each club and 15 awards to clubs for obtaining the highest standing in each Home Economist's district. This latter award takes the form of a book or booklets of $5.00 in value which will be of use to all the club members. This year the following collection was selected: Weeds of Canada, Native Trees of Canada, Wild Plants of the Canadian Prairies and Plant Pest Handbook.

Those clubs receiving this award were: Girouxville Busy Bees, Ridgeview, Heisler Gay Gardeners, Spruce Grove, Cherhill, Crooked Creek Green Thumbs, Spring Valley, Delburne, St. Paul, Gadsby, Hairy Hill, Innisfree, Metiskow, Clyde Happy Gang, and Breton.

Two members were selected from either the Garden or Food Clubs to attend the Alberta Locker Association Convention held in Calgary. Winners were: Shirley Neal from Bentley and Rosella Mastel from Conquerville.

Besides speaking of their work in 4-H the girls gave a demonstration entitled "From Freezer to Table".

Food Clubs

Although there was only an increase of one club, the total membership in this project increased by 36. Since the topic of food is also partly covered in the garden project, it is felt that considerable emphasis is being given to this subject. Again this year only one delegate was sent to National Club Week from the combined food and home decoration clubs.

Home Decoration Clubs

This project continues to be one of the less popular projects. Where carried on, they have proved most successful. Four clubs were in operation this year.

Clothing Clubs

These continue to be the most popular projects with a total of 90 clubs in operation.

Evidence showed that the change in projects to be undertaken in the second year proved most acceptable. Successful achievement days were held by many clubs, with a high standard of work being apparent. Three members were again elected from the clothing project to attend National Club Week.

T. Eaton Awards

The T. Eaton Company presented pinking shears and timers to the winners in each food, clothing and home decoration club. Eighty-two awards were made in clothing clubs, 18 in foods and four in home decoration.

Provincial Record Book Competition

A Provincial Record Book Competition was inaugurated during the year. Two classes were established for each of the food, clothing and home decoration clubs, one for first year members and one for second year or more. The competitions involve selection of the best record book for the province in each class.

The following were the winners:

Food—First year—Delores Hanson, Cadogan
Second year and up—Bernice Gordeyko, Ohaton
Clothing—First year—Gloria Cranston, Wembley
Second year and up—Yvonne Grose, Clive
Home Decoration—Beryl Irwin, Barons

Silver trays, suitably engraved, were awarded the winners.

Report of the Radio and Information Branch

E. B. SWINDLEHURST, Supervisor

E. V. Hamula, Senior Commentator
C. Scott Flewitt, Commentator
Miss D. R. Rodney, Information Officer

Useful and authoritative information on matters of farm interest was the objective of the Radio and Information Branch.

Broadcast from ten Alberta stations, the radio program "Call of the Land" continued to meet with favourable response. In its eighth successive year, it brought to rural listeners a wealth of useful information from many sources. An added feature this year was introduction of a television service by the branch.

The weekly releases "Science and the Land" and "Farm Notes" provided reports of research in the field of agriculture and offered timely suggestions from Department specialists. To all who contributed towards success of these endeavours go our sincere appreciation and thanks.

Radio Production

During 1960 "Call of the Land", a Monday to Friday noonday farm radio broadcast was aired 261 times on each of ten Alberta radio stations. Following was the complete roster of stations broadcasting "Call of the Land".

CKUA Edmonton	12:20 p.m.		CKSA Lloydminster	12:50 p.m.
CFRN Edmonton	12:45 p.m.		CJDV Drumheller	12:50 p.m.
CFGP Grande Prairie	12.05 p.m.		CFCN Calgary	1:00 p.m.
CFCW Camrose	12:05 p.m.		CJOC Lethbridge	1:05 p.m.
CKRD Red Deer	12:45 p.m.		CHAT Medicine Hat	1:05 p.m.

Among the primary objectives of the radio personnel in this branch was making the best possible uses of radio and television as Agricutural information media. To best achieve this, effort was continually being made to provide material of a variable and appealing nature to as many rural homes as possible. Again this year attention was concentrated on variety, preciseness and timeliness. Liaison and service to commercial farm radio and television personnel, on-the spot reports and interviews, advertising of Alberta Department of Agriculture services, emphasis on current farm problems, emergency situations, as well as agricultural conventions, conferences and special events, all received attention.

The many calls for services from personnel of this branch by commercial and farm organizations have led to its recognition as a focal point of farm information.

"Call of the Land" was produced, recorded and distributed from the studios of the Radio and Information Branch in the Terrace Building. Excellent co-operation was again received from the engineering and managerial staff of CKUA, Edmonton. Again this year technical facilities of CKUA, Edmonton, and CFRN, Calgary, were used for the direct transmission of a total of thirty-four broadcasts to and from other parts of the province. Network line facilities were arranged for by Alberta Government Telephones.

Evaluation

The dissemination of information is akin to advertising. To be effective it must be continuous and repetitive in nature. Effectiveness is measured by surveys, which are costly and beyond appropriations made available to this branch. Listeners inquiries, therefore, become a gauge as to the popularity of programs conducted. Many letters and telephone requests for information related to subjects aired on "Call of the Land" were received weekly. For example, estimated response to a very short commentary on Sweet Clover mites, aired early last spring, was in the several hundreds. Similar responses were recorded when the "Unthreshed Grain Assistance Policy" was announced.

A Canada-wide commercial survey organization, The Bureau of Broadcast Measurement, in a survey conducted last spring showed that approximately 42,000 radio sets were tuned in daily to the ten Alberta radio stations broadcasting "Call of the Land" at the time that the show was on the air.

Such figures make it increasingly evident that this branch was supplying an essential and highly rated service to the province.

Programming

In gathering material a great deal of effort was put into providing an interesting variety of material pertaining to all phases of farming in Alberta. This year efforts were again concentrated on variety of presentation. Broadcasts contained an average of five items each, with on-the-spot interviews, commentaries and editorials in the lead as methods of presentation.

The following table illustrates these trends during the past five years of broadcasting by the department.

	Number of Programs				
	1960	1959	1958	1957	1956
The Personality interview	62	63	108	109	168
On-the-spot reports and interviews	133	145	95	70	33
Miscellaneous items and announcements	32	27	29	31	43
Editorial (by commentators or guests)	33	23	19	35	15
Panel discussions	0	2	9	15	0
Musical (special days—Christmas)	1	1	1	1	2
	261	261	261	261	261

To maintain an interesting and fast moving show, time limitations of 4 to 5 minutes were placed on interviews and 2 to 3 minutes on commentaries. Announcements and other items were edited down to less than one minute each. This policy, instituted over two years ago makes it possible to carry as many as 8 to 10 items per broadcast. This year 1,078 items were aired on 261 shows.

The following tables show the nature of the material used and the number of times dealt with during the year, as compared to the three previous years.

	Incidence			
	1960	1959	1958	1957
General Agriculture (Including world and national items)	134	139	73	106
Livestock	268	221	159	90
Field Crops	210	169	149	122
Farm Safety	36	60	56	22
Farm Management	31	42	51	21
4-H	54	42	29	15
Poultry	23	30	27	18
Dairying	56	60	26	26
Veterinary Science	22	16	22	26
Horticulture	36	32	21	22
Farm Mechanics	26	33	18	12
Agricultural Pest Control	57	28	15	11
Schools of Agriculture	22	18	13	19
Beekeeping	9	14	7	8
Fur Farming	6	8	6	6
Miscellaneous (Consumer topics, announcements, etc.)	88	117	35	69
	1,078	1,034	712	593

Sources of personality appearances for the year as compared to the previous three years were as follows:

	Number of Appearances			
	1960	1959	1958	1957
Alberta Department of Agriculture	89	100	91	85
Other Alberta Government Departments	14	28	27	12
Canada Department of Agriculture	26	16	8	21
University of Alberta	11	11	15	8
Farm People (Including 4-H)	82	125	109	128
Others	86	61	44	108
	308	341	294	362

To provide the desired variety and local color for each show, extra travel to all parts of the province as well as many special programs were necessary. Among the special series were seven daily features originating from the Royal Winter Fair. For the third year in succession these were relayed to radio stations by Alberta Government Telephones network each morning thus providing an up-to-date reporting service. In addition daily night press reports of Alberta winnings at the Royal were supplied to six daily news outlets. This was the sixth successive year in which reports to Alberta from the Royal were made. The assignment was handled by Scott Flewitt who worked in close liaison with other Alberta Government officials, as well as with press, radio and television personnel. This service was recognized as one of the best of its kind in Canada.

Other events handled in a similar manner were the Alberta Federation of Agriculture, Farmers Union of Alberta and Western Stock Growers conventions, and the Calgary and Edmonton Exhibitions and Spring livestock shows. Attendance at agricultural events or conventions averaged nearly one per week. In addition, staff members were called on to take part in panel discussions, courses on communications and public speaking, as well as to assist in public relations problems confronting other branches in the department.

During the year twenty-four programs featured guests from other countries. They included ten from the United States, nine from the United Kingdom and one each from Alaska, Australia, Hawaii, Rumania and India.

As of December 31st, this branch had produced 2,023 continuous Monday through Friday farm broadcasts.

Television

1960 marked the introduction of a television service as an additional responsibility of this branch. Television presents a large potential as a very effective extension tool for agriculture.

Since the cost of a sponsored program was an initial deterrent, information for television in 1960 took the form of short television film clips supplied to each of the seven TV stations in Alberta and the C.B.C. Winnipeg office for use on their farm show for the prairies, Country Calendar.

The production cost of the film clip service was reduced by working in co-operation with the Film and Photographic Branch of the Provincial Secretary's Department, which assumed responsibility for filming, processing, printing and distributing copies to the individual TV stations. The Radio and Information Branch directed production and scripting, and absorbed the cost of film, processing and printing.

The short complete stories on silent film supplied to each outlet were accompanied by written shot lists and scripts for use by the local announcer.

From May to October fifteen film clips were shot on a variety of agricultural topics. These included Seeding Operations and crop report, Seed Germination Testing in Federal Laboratory at Edmonton and crop report, 39th Annual Feeders' Day—University of Alberta, Soil Moisture Penetration Experiments at U. of A. Soils Dept. and crop report, Pioneer Field Day at Willingdon, Weed Control Spraying Operations and crop report, and 30th Anniversary of the Annual Breton Field Day and crop report. Other topics were Field Pea Harvesting and crop report, Specialty Crops, Irrigation and Vegetable Crops, Dairy Princess Competition, 4-H Eliminations and Award Trip Winners Judged at Olds, Provincial 4-H Dairy Show at Red Deer, Harvesting and Adjusting Combines, and Trees for 1961 Spring Planting.

The films were used on farm shows and news casts at each of the outlets. For a farm show they were usually used in entirety but for a news cast, because of time limitation, an edited version was telecast. The C.B.C. used many of the films on the prairie edition of the farm show, Country Calendar.

Farm directors and news editors of all stations commented very favourably on the service which complemented their regular programming. They requested that information of this type be continued and if possible increased because there is a general lack of good television material on agricultural topics.

This branch also co-operated with the Film and Photographic Branch of the Provincial Secretary's Department in issuing to each TV station in Alberta, as well as the C.B.C., 1,200 feet (36 minutes) of film material on coverage of the Royal Winter Fair at Toronto in November. Alberta is the only province in Canada that provided this service, which was very much appreciated by the stations who regard it as part of their regular programming each year at that time.

Science and The Land

Seventy-seven issues of Science and the Land were distributed during the year. This weekly release featured progress and results of agricultural research at the University of Alberta and the Canada Agriculture research centres in the province.

Periodic calls were made and personal discussion was effected with the scientists concerned. Visited in 1960 were the various sections of the research station at Lethbridge, the experimental farms at Manyberries, Lacombe and Beaverlodge, the Provincial horticultural station at Brooks, the University departments of animal science, plant science, soil science, botany and entomology, the Canada Agriculture laboratory of plant pathology and division of agricultural economics in Edmonton, and the forest biology laboratory in Calgary.

Every assistance was offered in the course of these visits. Reports and theses were made available and opportunities to observe experiments in progress were provided. Attended during the year were annual meetings of the Entomological Society of Alberta, the Canadian Society of Agronomy (Western Section) and the advisory committee meetings in Edmonton on fertilizers, cereals, forage, horticulture, pests and weeds.

A call was also made at the Canada Agriculture research branch on the Univerity of Manitoba campus when in Winnipeg in September and an opportunity afforded of meeting some of the scientists there engaged.

Farm Notes

Concise statements of wide agricultural interest were released weekly in the Alberta Department of Agriculture Farm Notes. Prepared by the information officer of the Radio and Information Branch, the notes provide a variety of timely farming and homemaking topics.

Subject matter was obtained chiefly from department specialists and the excellent co-operation received from all branches has been appreciated. During 1960, 52 issues of Farm Notes contained 312 items.

Both Science and the Land and Farm Notes were well received and good use was made of them by radio, press and extension personnel. Distribution, although restricted, now amounts to 1,800 copies, half of which were mailed to elevator companies in Alberta for agent reference.

Report of the Land Conservation and Utilization Committee

G. R. STERLING, Chairman

Personnel of the Land and Forest Utilization Committee remained the same as in the 1956 Report other than Dr. John Toogood replacing Dr. J. D. Newton, who retired from the Soils Department of the University of Alberta. Three meetings of the Committee were held during the year. The following work was done on the various projects as listed below:

Rannock

The S½ 4 and W½ 21 both in 55-10-4 were cultivated and seeded to a grass mixture. Cross fences were built to make two forty acre pastures on the SE 4, the NW 8-55-10-4 was surrounded with a fence, and a lane up the roadway between Secs. 5 and 6 and 7 and 8 on 55-10-4. This year the pasture carried a total of 878 mature head and approximately 400 suckling calves.

A brush spraying demonstration was conducted on approximately 50 acres located in the south east corner east of the sorting corrals on the SW 6-55-10-4. This area was located in such a way that a temporary fence can be built to keep cattle from grazing on it in order that controlled burning may be followed up in an attempt to replace the brush cover with grasses.

Wanham

During the year the following parcels were added to the project: E½ 27, N½ 22, E½ 26, E½ 28, S½ 32 and W½ 34 all in 79-2-6. The E½ 26 and E½ 28, as mentioned above, were seeded during the year.

Fences were also built around Secs. 22, 23 and W½ 24-79-3-6 and around Sec. 19, W½ and NE 20 and N½ 21 all in 79-2. It must be completed around the N½ 22-79-2 in the spring because this unit was obtained too late for fencing during 1960. The sorting corrals were built on the SE 29 and are ready for use in 1961.

The grass, which was seeded in 1959, produced reasonably good stands and was allowed to go ungrazed or uncut in order that the stands may thicken. There is a good carry over of grass for 1961.

Minburn

The following lands were acquired and added to this project: E½ 19, NW 21, S½ and NW 28, Secs. 31 and 33 all in 48-9-4 and Sec. 19-49-9-4. All of the cultivation on the above mentioned land was seeded to grass. About 150 head of cattle were pastured on part of this pasture on a permit basis during the year.

The fence was built around Secs. 5-8, 17-19, and S½ 20 all in 49-9-4 and Secs. 1, 12, 13 and 14 in 49-10-4 with a cross fence running through the middle of Secs. 6, 7, 18 and 19. Suitable sorting corrals were constructed on the S½ 32 with appropriate lanes to drive the cattle from this location to either of the north two pasture fields. This pasture is ready for occupancy in 1961.

Westlock

There was little or no activity in connection with this project, however, in late fall an offer to purchase was made to the private owners located in the area. The Order-in-Council giving authority to establish this pasture was approved late in the year and it is planned to commence this pasture in 1961.

Green-Yellow Area

Arrangements were made late in the year to acquire one parcel of land located in this area. Final documentation will not be completed until 1951.

Ponoka

Investigational work has been carried out in the County of Ponoka but definite arrangements for a community pasture were not completed.

Wetaskiwin

The County of Wetaskiwin requested assistance with an area in the western part of the County, namely: Secs. 4-9 inclusive and 16-18 inclusive in 47-5-5, Secs. 1-4 inclusive, 9-16 inclusive, all in 47-6-5. It is anticipated that this project will be commenced during 1961.

Thorhild

Investigational work was done on an area in the north eastern part of this County and a report made to the effect that this area, namely: Secs. 3-10, 15-22, 27-34 in 62-18-4, Secs. 1-3, 10-15, 22-27, and 34-36 in 62-19-4, and Secs. 2 and 3, S½ 10 and S½ 11 in 63-19-4 be made into a community pasture.

Smoky Lake

The Municipal District of Smoky Lake requested assistance with the following lands: N½ 14, NE 15, E½ 22, all of Secs. 23, 26, 27 and 28, E½ 29, all Secs. 32-35 in 60-18-4 and SE and W½ 3, all Secs. 4, 5, 8 and 9 and W½ 10 in 61-18-4. This area was investigated and a recommendation made that we proceed with this project.

Stony Plain

Investigations were made in an area covering portions of Townships 51, 52 and 53 in Range 6 at the request of the Stony Plain Municipal District. A preliminary report has been made on the project but as yet the municipality has not requested assistance.

Irrigation Pasture Projects in Southern Alberta

The Committee investigated and studied certain projects which follow at the request of the Colonization Branch. After considerable study the Committee recommended and the Cabinet approved that seven irrigated pastures be established and built at a total approximate cost of $500,000.00. The approval stipulates that $50,000.00 shall be expended annually until the seven pastures are completely developed.

The following information gives the nearest post office and the land location of each of the seven pastures. Following each of the land locations are the total number of acres and the proposed irrigated acres.

Name	Land Location	Total Number of Acres	Proposed Irrigated Acres
Grassy Lake	Secs. 1-6, S½ 5 & SE 7-10-13-4, & Sec. 11, S½ & NW 12-10-4-4	2,880	535
Burdett	NE 7, N½ 8, N½ 9 & NW 10-10-12-4	688	55
Bow Island	SE 7, Sec. 8, SW 9, SW 16 & SE 17-12-10-4	1,281	382
Seven Persons	NW 16, N½ 17, S½ 20, S½ & NE 27, S½ 22, N½ 27, S½ 28 & Sec. 34 all in 11-7-4	2,867	420
Medicine Hat	NW 6-12-6-4, N½ & SE 1, & Secs. 2 & 3 in 12-7-4, Sec. 11 & S½ & NW 12 in 12-7-4	3,026	635
B.R.D. North Pasture	NE 13, NE 22, SW 23, S½ 24, NE 25, N½ 33, N½ & SE 34 in 17-18-4, NW & S½ 2, NE & S½ 3, Sec. 4, S½ 9 & SE 10 in 18-18-4	3,664	846
B.R.D. East Pasture	Secs. 7 & 8, N½ & SW 18 & SE 19 in 16-17-4, Secs. 5, 6, 7 & 8 in 17-17-4, Secs. 1 & 12 in 17-18-4	8,762	725

Seven Persons Project

The following items of development were completed during 1960.

1. Land levelling was done on the following quarter sections as indicated below:

NE 17-11-7-4	88.4 acres levelled
NE 21-11-7-4	20.8 acres levelled
SE 21-11-7-4	35.0 acres levelled
SW 21-11-7-4	20.9 acres levelled
SW 22-11-7-4	70.4 acres levelled
SE 22-11-7-4	62.8 acres levelled

2. All rocks were picked off the levelled area and used for irrigation structures.
3. The land was cultivated, worked down, seeded to a fall rye in order to prevent winter drifting, and all the land was irrigated.
4. All of the irrigation works, including drop structures, ditches, etc., were built to deliver water to each of the fields levelled.

Blackfoot Grazing Association

This association requested assistance with bull-dozing and fire fighting in order that they might conduct controlled burning on part of their pasture where brush was dominating the grasses. Assistant was granted in the amount of $500.00 for bulldozing and $260.00, which covered 26 fire-fighters at $10.00 per day.

Soil and Feed Testing Laboratory

G. R. Sterling continued as a member of the supervisory committee of this laboratory. A total of 3 meetings were held throughout the year. The following table shows the samples handled during the last five years:

1956	1,543
1957	1,649
1958	2,378
1959	2,219
1960	3,681

Below is a table showing the different samples analyzed and a breakdown of the feed samples. Note that 659 samples of feed were submitted but analysis was done on 879 feeds because some samples were analyzed for more than one thing.

	Feeds	Farm Soils	Greenhouse Soils	Total for Quarter
January 1-March 31	272	178	189	639
April 1-June 30	75	587	131	793
July 1-September 30	53	394	236	683
October 1-December 31	259	1,160	147	1,566
Total for year	659	2,319	703	3,681

BREAKDOWN OF FEED SAMPLES ANALYZED

	Grains	Hays	Silages	Special* Analyses	Total for Quarter
January 1-March 31	85	138	43	114	380
April 1-June 30	37	29	4	17	87
July 1-September 30	22	28	1	18	69
October 1-December 31	68	108	53	114	343
Total for year	212	303	101	263	879

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*Nitrates; Prussic Acid; Carotene; Fat

Report of the Board of Turstees
THE SURPLUS WHEAT BOARD MONIES TRUST ACCOUNT

HONOURABLE L. C. HALMRAST, Chairman
R. M. Putnam, Deputy Minister of Agriculture
H. W. Gaebel, Secretary, Department of Agriculture
Richard Ballhorn, Farmer, Wetaskiwin, Alberta
Arthur Pierson, Vice-President and Treasurer of the Independent Grain Co. Calgary

Receipts for the year ending December 31st 1960 totalled $3,544.66 all of which was in payment of interest on investments.

Payments for the year ending December 31st, 1960 amounted to $1,430.00 and were made up as follows:

Scholarships and Bursaries	$1,400.00
Meeting Expenses	30.00
Total	$1,430.00

Meetings

A meeting of the members of the Board was held on August 17th, 1960 and scholarships and bursaries totalling $3,650.00 were made available for the coming year.

General

The Board has continued the policy of conserving the principal in the Trust Fund, making all payments from income received on investments.

Since the Board instituted this policy of providing Scholarships and Bursaries, the sum of $38,641.26 has been paid out for this purpose totalling 455 in number.

List of Scholarship Winners Named During 1960

4-H Club Winners—$100.00 each

Paul Sawchuk, Waskateneau
Neil Hatch, Cherry Grove
John Briggs, R.R. 2, South Edmonton
Linda Stepenoff, Paradise Valley
Diane Speight, Cairns
Audrey Everett, Box 282, Claresholm
Fay Olson, Cranford
Gary Stordahl, Bawlf
Frank Davies, Bow Island
David Hueppelheuser, Blackfalls
Marilyn Smith, Endiang
Denise Dechaine, St. Lina
Ron Hanson, R.R. 4, Calgary
Ted Baker, Okotoks
Allan Rand, Innisfail
Maureen Young, R.R. 2, Calgary
Margaret Hlavoy, Buck Lake
Elizabeth Liddell, Mirror
Norman Costley, Box, 68, Worsley
Carol Moen, Bad Heart
Darlene Ek, Deadwood

To University of Alberta from Agricultural Schools—$150.00 each

Wendall Lund, Hughenden
Arnold Frank Rand, Innisfail

University of Alberta Young Peoples Week—$100.00 each

Maureen House, Arrowwood
Mike Kamalchuk, Prosperity

Bursaries Awarded to Young People Attending an Agricultural School—$100.00 each

Catherine E. Bricker, Blackie
Jack McLaren, Box 131, Bowden
Joyce Stannard, Box 166, Lomond
Clayton V. McWhirther, R.R.6, N. Edmonton
Wayne P. Smiley, Lavoy
Alvin T. Roy, Carnwood

TREASURY DEPARTMENT
WHEAT BOARD MONIES TRUST FUND
Balance Sheet as at December 31, 1960
ASSETS

Investments:	Par Value	Book Value
Government of Canada 3¾% due January 15/78	$ 2,500.00	$ 2,517.20
Province of British Columbia 3% due December 15/69	45,000.00	44,792.34
Province of New Brunswick 3½% due April 1/67	45,000.00	44,914.02
Ontario Hydro-Electric 4¼% due November 1/67	4,000.00	3,971.42
Province of Newfoundland 3¾% due June 1/76	4,000.00	3,898.40
City of Calgary 3¾% due July 1/68	4,000.00	3,995.72
	$104,500.00	$104,089.10
Cash in Bank		4,771.76
Accrued Interest		622.79
		$109,483.65

LIABILITIES

Trust Fund December 31, 1959	$107,313.65
Add: Surplus for 1960	2,170.00
	$109,483.65

TREASURY DEPARTMENT
WHEAT BOARD MONIES TRUST FUND
Accrued interest as at December 31, 1960

Government of Canada Debentures:		
$2,500.00 3¾%, January 15/78, 5½ months		$ 42.96
Province of British Columbia Debentures:		
$45,000.00 3%, December 15/69, ½ month		56.25
Province of New Brunswick Debentures:		
$45,000.00 3½%, April 1/67, 3 months		393.75
Ontario Hydro-Electric Debentures:		
$4,000.00 4½%, November 1/67, 2 months		28.33
Province of Newfoundland Debentures:		
$4,000.00 3¾%, June 1/76, 1 month		12.50
City of Calgary Debentures:		
$4,000.00 3½%, July 1/68, 6 months		70.00
Bank Interest:		
November 1960 $4,671.76 @ 1¾%	$ 6.72	
December 1960 4,246.76 @ 1¾%	6.31	13.03
		$ 616.82
Add: Accum. of Discount:		
Accrued on Province of British Columbia	$ .96	
" " Province of New Brunswick	3.31	
" " Ontario Hydro-Electric	1.19	
" " Province of Newfoundland	.80	
" " City of Calgary	.26	
	$ 6.52	
Less: Amor. of Premium:		
Accrued on Government of Canada	.55	5.97
Net Earnings Accrued to December 31, 1960		$ 622.79

TREASURY DEPARTMENT
WHEAT BOARD MONIES TRUST FUND
Statement of Receipts and Payments for the Year Ended December 31, 1960

Bank Balance December 31, 1959		$ 2,657.10
Interest on $ 2,500 Government of Canada Debentures	$ 93.74	
" " 45,000 Province of British Columbia Debentures	1,350.00	
" " 45,000 Province of New Brunswick Debentures	1,575.00	
" " 4,000 Ontario Hydro-Electric Debentures	170.00	
" " 4,000 Province of Newfoundland Debentures	150.00	
" " 4,000 City of Calgary Debentures	140.00	
" " Bank Balances	65.92	
		3,544.66
		$ 6,201.76
Deduct Payments:		
Scholarships—Olds School	$ 600.00	
—Vermilion School	500.00	
—University of Alberta	300.00	
Meeting Expense—Richard Ballhorn	10.00	
—A. Pierson	20.00	
		1,430.00
Bank Balance December 31, 1960		$ 4,771.76

Report on Farm Credit

G. R. STERLING, Executive Assistant and Chairman Advisory Committee
K. G. Taylor, Farm Credit Administrator and Secretary Advisory Committee

Mr. Moffat left the Department in January 1960 to accept a position with a commercial company. His position as Farm Credit Administrator was filled with the appointment of Mr. K. G. Taylor on March 24th, 1960.

Farm Purchase Credit Act

During the fiscal year April 1st, 1959 to March 31st, 1960, the Provincial Advisory Committee approved 411 applications, committing a total of $2,209,238.00 in Government loans.

There are now 68 Farm Purchase Boards operating in Alberta. The following is a list of the Counties, Municipal Districts and Improvement Districts which have formed boards up to and including December 31st, 1960, along with a listing of applications which have been handled by the Provincial Advisory Committee since its inception in 1957. The figure in brackets shows the number of applications submitted to the Advisory Committee for the year 1960 only.

District	Applications Submitted to Prov. Committee	Approved	Rejected	Withdrawals	Hold for more Information	Value of Farm Lands	Loans
M.D. Bonnyville No. 87	21 (12)	15	4	1	1	$ 192,100.00	$ 89,300.00
" Camrose No. 63	54 (49)	44	9	......	1	512,940.00	250,910.00
" Cardston (Western) No. 6	33 (11)	28	4	1	......	349,270.00	151,705.00
" Cardston (Eastern) No. 6	5 (3)	5	......	......	......	38,000.00	18,300.00
" Eagle No. 81	30 (17)	23	6	......	1	184,500.00	90,700.00
" Flagstaff No. 62	11 (11)	11	......	......	......	93,000.00	46,750.00
" Foothills No. 31	15 (10)	11	2	......	2	210,628.00	90,600.00
" Kneehill No. 48	......	......	......	......	......	......	......
" Lacombe No. 64	7 (7)	5	1		1	58,050.00	28,775.00
" Lac Ste. Anne No. 93	9 (9)	4	2	3	......	58,700.00	25,054.50
" Lamont No. 82	68 (33)	53	11	1	3	706,950.00	257,725.00
" Leduc No. 75	40 (22)	34	3	1	2	364,525.00	175,662.50
" Lethbridge No. 25	34 (18)	20	13	......	1	294,300.00	141,495.00
" Minburn No. 72	50 (19)	38	9	1	2	346,050.00	159,955.00
" Mountain View No. 49	30 (16)	19	10	......	1	261,800.00	102,300.00
" Paintearth No. 53	34 (14)	33	......	1	......	218,650.00	145,945.00
" Peace No. 135	1 (1)	1	......	......	......	20,000.00	10,000.00
" Rocky View No. 44	30 (15)	26	3	......	1	376,470.95	151,077.95
" St. Paul No. 86	14 (11)	9	5	......	......	68,000.00	34,000.00
" Smoky Lake No. 89	......	......	......	......	......	......	......
" Spirit River No. 133	......		......	......	......	......	......
" Starland No. 47	21 (14)	16	5	......	......	201,090.00	96,920.00
" Stony Plain No. 84	7 (1)	4	2	......	1	27,500.00	12,050.00
" Strathcona No. 83	6 (1)	4	1	......	1	39,450.00	17,775.00
" Sturgeon River No. 90	22 (12)	12	8	......	2	164,470.00	74,675.00
" Vermilion River No. 71	31 (21)	26	4	1	......	257,450.00	126,125.00
" Wainwright No. 61	11 (8)	8	1	1	1	102,400.00	51,200.00
" Westlock No. 92	65 (33)	47	15	......	3	427,750.00	206,175.00
" Wheatland No. 40	9 (3)	7	1	......	1	109,680.00	45,500.00
" Willow Creek No. 26	40 (20)	26	10	3	1	374,725.00	178,256.50
County Athabasca No. 12	17 (10)	8	5	4	......	85,399.00	37,500.00
" Beaver No. 9	79 (36)	60	15	2	2	614,850.00	276,500.00
" Forty Mile No. 8	33 (12)	29	2	......	2	341,721.27	151,350.00
" Grande Prairie No. 1	30 (4)	24	5	......	1	239,300.00	107,800.00
" Newell No. 4	8 (4)	6	2	......	......	70,400.00	30,360.00
" West Ponoka (Rimbey) No. 3	29 (12)	16	10	1	2	175,800.00	79,820.00
" East Ponoka (Ponoka) No. 3	33 (15)	27	4	2	......	360,750.00	166,075.00
" Stettler No. 6	6 (2)	5	......	......	1	56,000.00	28,000.00
" Thorhild No. 7	21 (13)	15	4	......	2	105,250.00	50,125.00

District	Applications Submitted to Prov. Committee	Approved	Rejected	Withdrawals	Hold for more Information	Value of Farm Lands	Loans
" Vulcan No. 2	49 (13)	42	2	2	3	595,325.00	247,822.50
" Warner No. 5	17 (8)	11	4	2	......	192,200.00	81,150.00
" Wetaskiwin No. 10	14 (14)	8	6	..	......	77,000.00	38,500.00
Special Areas No. 2	52 (12)	46	3	3	......	417,710.00	196,523.00
Special Areas No. 3	15 (9)	12	3	.	......	144,480.00	61,590.00
I.D. No. 11	14 (9)	6	5	3	......	95,500.00	43,280.00
" No. 22	3 (1)	1	2	......	......	16,000.00	8,000.00
" No. 42	.	......	......	......	......	......	......
" No. 58	2 (2)	1	1	......	..	13,000.00	6,500.00
" No. 65	27 (13)	14	11	......	2	110,000.00	54,000.00
" No. 77	1 (1)	1	......	......	......	2,000.00	1,000.00
" No. 78	6 (..)	6	......	......	......	19,250.00	8,575.00
" No. 95	4 (3)	2	2	......	......	17,000.00	8,500.00
" No. 101	8 (2)	6	2	......	......	38,000.00	17,350.00
" No. 102	27 (13)	13	13	1	......	83,700.00	37,980.00
" No. 107	2 (...)	2	......	......	......	8,200.00	3,840.00
" No. 108	1 (...)	1	......	......	......	3,500.00	1,750.00
" No. 109	1 (....)	1	......	......	......	11,000.00	5,500.00
" No. 111	......	......	......	......	......	......	......
" No. 124	..	..	..	......	......	......	......
" No. 125	6 (4)	3	3	......	......	7,500.00	3,550.00
" No. 126	4 (3)	2	2	......	......	13,500.00	6,750.00
" No. 131	3 (2)	1	2	......	...	8,000.00	4,000.00
" No. 132	9 (8)	3	3	1	2	12,500.00	6,250.00
" No. 134	6 (3)	4	1	1	......	11,000.00	5,500.00
" No. 138	10 (5)	2	8	......	......	17,000.00	6,800.00
" No. 139	2 (2)	1	1	......	......	5,500.00	2,750.00
" No. 146	2 (1)	1	1	......	......	6,000.00	3,000.00
" No. 147	1 (...)	1	......	......	......	4,900.00	2,450.00
TOTALS—68	1,240 (627)	910	251	36	43	$10,037,684.22	$4,569,371.95

Of the 910 applications approved, 463 applications have been approved in 1960, with $2,512,604.00 committed in loans for the twelve month period.

A Farm Purchase Board for the Municipal District of Smoky River No. 130 is in the process of being formed.

The Chairman or Secretary have visited 33 different Farm Purchase Board meetings during 1960, and met with M.D. Councils on 2 occasions to discuss the Farm Purchase Credit Act.

The Provincial Advisory Committee held 23 meetings during the year, and have met a total of 62 times since the Act was passed in 1957.

Farm Home Improvement Act

The Farm Home Improvement Act was assented to on April 7th, 1959. To the end of 1960 a total of 119 loans had been granted having a value of $185,040.00. The following is a breakdown of the loans granted during 1960:

Lendor	Address	Number of Loans Approved	Total Amount Approved
Treasury Branch	Andrew	5	$ 9,500.00
" "	Barrhead	5	8,500.00
" "	Brooks	1	2,000.00
" "	Calgary Main	2	3,500.00
" "	Calgary North Hill	4	3,575.00
" "	Camrose	1	2,000.00
" "	Cardston	1	2,000.00
" "	Coronation	2	2,200.00
" "	Didsbury	2	2,000.00
" "	Drumheller	7	9,570.00
" "	Edmonton South	1	2,000.00
" "	Fairview	2	3,000.00
" "	Falher	1	2,000.00
" "	Grande Prairie	1	1,200.00
" "	Innisfail	9	13,050.00
" "	Killam	4	7,600.00
" "	Mayerthorpe	5	7,500.00
" "	Olds	3	5,500.00
" "	Red Deer	3	4,050.00
" "	Rocky Mountain House	2	4,000.00
" "	Rycroft	1	2,000.00
" "	Ryley	3	3,910.00
" "	Saint Paul	2	1,635.00
" "	Settler	6	9,900.00
" "	Stony Plain	4	5,900.00
" "	Three Hills	3	4,450.00
" "	Two Hills	1	625.00
" "	Vegreville	2	3,200.00
" "	Vermilion	2	4,000.00
" "	Wetaskiwin	2	4,000.00
		87	$134,365.00

The local Bank or Treasury Branch accepts an application for the farm home loan. If approved by the Bank or Treasury Branch, the application and promissory note must be endorsed by the Treasury Department before the loan is guaranteed under the Act.

Farm Economics Branch

S. S. GRAHAM, Acting Director

B. J. McBain, Agricultural Economist, Supervisor of Cost Studies
K. D. Porter, Agricultural Economist, Cost Studies
T. A. Peterson, Agricultural Economist
C. H. Ferries, Agricultural Economist
Dr. G. E. Ackerman, Agricultural Economist

On April first, the new Farm Economics Branch was formed consolidating the Farm Cost Study Personnel with the Extension Farm Management Specialists into one Branch. This move was designed to eventually bring all Agricultural Economists working within the Department under one Branch so that their work could be more effectively coordinated and directed to better service the needs of the Department and the farm families of this province. The formation of this Branch gives recognition to the growing need and importance of the role of Agricultural Economists in the still dominant Agricultural industry.

Along with the inevitable growth and transition "pains" a considerable amount of useful work was accomplished as well as laying the foundation for the development of an effective branch of the Department.

Four Fluid Milk Studies Completed in 1960

There were about 100 fluid milk records taken at the milk sheds of Calgary, Edmonton, Lethbridge and Medicine Hat. There were ninety fluid milk reports sent out in the year each containing over one hundred entries of accounting results and measures of management efficiency.

A twenty-year analysis of milk production was completed for the Edmonton area and some of the most important topics of the analysis are listed in Table I. This is indicative of what has been done in the Four areas of milk control under continuous study. The long term continuity has been made possible by the continued request and some financial support from the Public Utilities Board and the milk producers and processors of Alberta (see Table I).

TABLE I

TWENTY YEARS OF DAIRY FARM COST STUDY ANALYSIS

Edmonton area—for illustration of highlights of data at 10 year intervals

	1939-40	1949-50	1958-59
No. of Farms under study	47	51	33
Size of Business			
Capital Invested	$16,939	$30,761	$48,132
Crop Acres	133	186	258
No. of milking cows	20.4	25.1	29.9
Labour			
Man equivalent per farm	2.6	2.5	2.1
Productive man work units per man	230	264	324
Labour per pound of butterfat (hrs.)	1.01	0.49	0.39
Labour per cwt. of milk (hrs.)	3.53	1.62	1.31
Gross Operating revenue per man	$ 1,873	$ 4,552	$ 7,426
Net Operating revenue per man	$ 532	$ 861	$ 1,984
Capital			
Operator's revenue per $1,000 invested	$ 281	$ 351	$ 327
Crops			
Yield per acre: Barley	23	12	26
Oats	34	20	38
Roughage	1.0	0.7	1.0
Livestock			
Milk Production per cow (lbs.)	8,340	8,847	9,824
Butterfat per cow (lbs.)	296	303	327.5
Grain and supplement fed per dairy animal units (lbs.)	2,440	2,278	2,767
Roughage per dairy animal unit (tons)	3.2	3.3	4.0
Butterfat Test (%)	3.5	3.3	3.3

Specialty Crop Studies in Irrigated Areas

Three reports on irrigation crops were published during the past year. The first, on the Taber Study, contained an analysis of the individual farm business as conducted over a five-year period. Comparative schedules of Income and Expenses, and measurements of management efficiency for every operator were included in this report. Thus a history of development was made available in each summary for each farm owner.

The second report, dealing with Enterprise Costing of Irrigated Specialty Crops, was a more comprehensive analysis of farm operations on a group basis. Profitability of the major and minor enterprises in the farm business was established. Allocation of expense and the use of analytic procedure were outlined at length in establishing the application of inputs of time, labour and expense to the appropriate crops. A statement of conclusions based on the five-year experience was set forth.

The third report contained a management analysis of study farms in the neighborhood of Vauxhall. Farm business data for the study was assembled with the cooperation of the Agricultural Extension Branch. Summaries were returned to all members. A four-year report on the Vauxhall program is now being prepared and should be published early in 1961. Following is a table showing some of the relationships determined from the irrigated crop studies.

TABLE II

SHOWS EXAMPLES OF DATA ANALYSED FROM THE TWO IRRIGATION STUDIES

	Taber 5 yr. average (1954-58)	Vauxhall 4 yr. average (1956-59)
Number of farms	23	32
Man equivalent per farm	2.4	1.3
Productivity per man (P.M.W.U.)	288	257
Size of farm (acres)	305	279
Size of farm (P.M.W.U.)	680	334
Capital Investment	$57,600	$34,850
Range—Capital Inevstment	$ 7,300-116,000	$ 6,327-103,120
Rate of Turnover	3.2 to 1	4.1 to 1.0
Gross Receipts per $1,000 Investment	$ 320	$ 241
Gross Receipts per farm	$18,434	$ 8,407
Total Expense per farm	$13,281	$ 5,761
Net farm Income	$ 5,153	$ 2,667
Labour Earnings	$ 3,350	$ 2,578
Range in Labour Earnings	$ –644 to 9,900	$–1,400 to 6,700

TABLE III

***SPECIALTY CROPS RECEIPTS, COST AND MARGINS—TABER 5-YEAR AVERAGES**

	Canning Peas	Canning Corn	Sugar Beets
Receipts per acres	$71.80	$92.54	$228.74
Cost per acre:			
Variable Costs	52.91	51.83	97.65
Fixed Costs	27.51	30.65	48.65
Margin for Management	–8.62	10.06	82.44

*Table abbreviated.

One of the objectives in costing specialty crops was the determination of profitability for each crop. To accomplish this the enterprises studied had to be separated from the rest of the farm business. On the basis of allocation of commensurate costs the above table shows the margin of profit per acre for the three crops which were analyzed.

TABLE IV

IMPROVED MANAGEMENT INCREASES EARNINGS

Mangement-Earnings Taber 5 yer. average		Management-Earnings Vauxhall 4 yr. average	
Factor Success Rating	Labour Earnings	Factor Success Rating	Labour Earnings
0	$	0	$ –668
1	1,055	1	646
2	2,608	2	1,060
3	3,862	3	1,359
4	6,277	4	3,244
5	9,935	5	6,125

Farm management efficiency was measured in terms of success in five major aspects of farm operation. These were Livestock production, Crop yield, Use of Labour, Use of capital and Size of business. The significance of the effect of increasing efficiency in securing increasing returns is shown in the above results obtained at Taber and Vauxhall.

Miscellaneous Activities

The Cost of Production Studies Division during the past year, cooperated with the Department of Economics, University of Alberta on providing matetrial on milk production for use in Post-graduate studies. Consultations with the Economics Department on Specialty Crops resulted in post-graduate work being undertaken in the canning crops field in marketing. In connection with the Fluid Milk Studies, meetings were held with the Public Utilities Board. Regulatory hearings at Edmonton, Calgary, Lethbridge and Medicine Hat and Red Deer required the attendance of the supervisor for the purpose of supplying Cost of Production information. A comprehensive report was prepared on milk production in the Calgary area and was presented to start out a two day conference discussing the innovation of bulk tank installation. Correspondence and office consultations concerning past and present data took place frequently with individuals and representatives of organizations on matters of land and livestock values, lease and partnership arrangements, farm business organization, credit, and capital investment. Contacts with District Agriculturists were maintained by interviews and by the distribution of Cost Study reports and by mutual participation in assembling Cost Study data in certain areas. At the Farm Maangement School at Olds, Cost Studies participation included a display of Study areas, procedures and outcome in the form of charts and bulletin reports.

Speaking engagements in Southern Alberta were met by members of the staff at which objectives and procedures of Cost Studies were discussed, and the results of present studies explained. Approximately 500 copies of "Irrigated Specialty Crops in Alberta" were sent out during the year, 250 of which went to the irrigation areas, District Agriculturists and Government Officials; and 250 to interested individuals and organizations throughout Canada.

Mixed Farm Study bulletins and current Fluid Milk Reports continued to be requested and were mailed out along with consulting advice on any special problems requested.

Requests for additional studies have been received from the Sugar Beet Growers Association, Potato Growers Association and the Poultry Branch. Development of these studies will occur as staff becomes available.

Farm Management Data Book

During 1960, work continued on providing farm management standards, work-sheets, marketing and outlook information to the District Agriculturists through a loose-leaf manual, which was set-up in 1959. The District Agriculturists have indicated that they can make excellent use of these guides, in assisting farmers in planning their business operations effectively, and they would therefore like to see much more of this data than has been currently available.

These data books have now been distributed to all of the District Agriculturists and their Assistants, the District Home Economists, the farm management teachers at the Agricultural Schools, and the heads of other branches of the Department. Close co-ordination of the Farm Economics branch with the other branches will be maintained in the issuing of material pertaining to agricultural economics. Such information to include feed substitution rates for feeding cattle and hogs, for physical response and financial results of fertilizer application on various soils, and forage handling methods. Already included in the manual is information such as a method of calculating "what is fair rent", father and son business agreements, sources of credit, and annual outlook data. The Poultry Branch has provided some material on production costs.

An attempt is being made by the Western Farm Economics Extension Committee, for the Prairie provinces to cooperate in compiling releases on common interest material such as standardization of terms, work units, and methods of analysis.

Farm Management Association

The Central Alberta Farm Management Association continued its discussion groups for a second year with an increased membership.

Improved accuracy in the accounting and analysis of members' farm operations has led to their more careful consideration of alternatives. Examples of sharper decisions being made by association members as a result of their "figuring" are:

(a) Shifting from a cow-calf beef program to a feeder program.
(b) Selling homegrown barley and buying back feed barley.
(c) Selling feeder calves after a short period of rapidly rising prices.
(d) Enlarging a dairy operation to spread the fixed costs over a larger business.
(e) Shifting an investment in one machine (combine) for

machine more useful in that farm business (forage harvest, and spreader).

(f) Developing a business-like arrangement between father and son.

(g) Utilizing credit on a sound basis for adjustments to increase productiveness and efficiency.

(h) Selling the farm business and taking advantage of a better opportunity for the same labour and capital.

In November, 50 members of the association participated in a Farm Business Tour. Three cattle-feeding operations were inspected—each feeding steers in a different way. One operator feeds hay and grain (dry-lot), one used silage and light grain, and one fed a straw and heavy grain ration. Both physical and financial aspects of the businesses were discussed by the farm operators. All three businesses showed incomes well above the average of the association.

Farm Management Training Course

One half of the District Agriculturists Staff attended an intensive two week course at Olds. Included were the extension staff not present at the previous year's in-service training course, as well as representatives from the Poultry and Livestock Branches and an extension supervisor from British Columbia. Five District Home Economists attended the second week.

The first week was used to outline some of the important economic principles of farm management—diminishing returns, least-cost combination of resources, greatest return combination of products, opportunity cost, discounting and comparative advantage. Discussion leaders for the first week were T. A. Petersen, C. H. Ferries and Dr. G. E. Ackerman, agricultural economists with the Alberta Department of Agriculture.

Practical application of these farm management principles highlighted the second week of the course. Mr. Homer Fletcher, Farm Management Specialist with Washington State University led the discussions, following a visit to two farms in the area. Mr. T. Clarke and T. Melford gave lectures on appraisal and estate planning.

Farm Management Groups

The District Agriculturists did considerable work in providing farm business management guidance to farm families in their areas. Some did this on an individual basis, while others held small group meetings regularly to teach and to discuss principles of farm management. Varaious stages of progress were reached with the groups. Some were in the beginning stages of learning basic principles of record keeping while others were in advanced stages of analysis of their farm records, of assessing farm business alternatives and then taking action on the basis of this analysis.

Regional Meetings of District Agriculturists

During the latter part of 1960, regional meetings were held in six areas with District Agriculturists, Home Economists, and headquarters extension staff in attendance. One of the purposes of these meetings was to discuss the various activities in the area of farm management and home management that were being undertaken and/or contemplated by the field staff, with the view of making the optimum use of the personnel and materials currently available. The field staff were asked to specify explicitly the type of assistance that was needed most from the agricultural economists. The results indicated that a high priority should be given to the accumulation of basic input-output information for the major farm enterprises in Alberta. Also important was the need for continuing instruction to the District Agriculturists of the application of farm management principles through other regional meetings and/or on an individual basis. There also appeared to be a need for agricultural economists to participate in short courses and with some farm groups.

Miscellaneous

Staff members participated in such activities as speaking on problems of an economic nature at the Hatcherymen's Short Course, Lands Conference, Beekeepers Short Course and convention, Lacombe Feeder's Day, Dairymen's Convention, Rural Leadership Conference, Edmonton Chamber of Commerce Short Course, Farm Women's Week and Calgary Fluid Milk Producer's conference. Also a trip was made to Saskatchewan to investigate the merits of cooperative farming and a farm finance conference for bankers was held at Lethbridge in cooperation with the University Department of Extension.

Report of The Alberta Emergency Measures Organization

Minister-in-Charge, HONOURABLE L. C. HALMRAST

Co-ordinator, Arnold J. Lavoie

Responsibilities and Aims

1. The Alberta Emergency Measures Organization was responsible for the development and co-ordination of civil emergency planning in the fields of continuity of government and civil defence.
2. The primary aims of Emergency Measures and Civil Defence were to prevent the unnecessary loss of life and to ensure the continuity of civil government in any catastrophe.

General

3. The year 1960 was one of transition, with the program undergoing revision to embrace the newer concept of civil emergency planning as a function of Government at all levels. All Departments of the Provincial Government, Boards and Agencies appointed senior officers to be responsible for emergency planning.
4. The first of several volumes of the "Alberta Survival Plan" was issued, to provide guidance to all concerned in the matter of survival planning. Subsequent volumes will contain necessary general information and the detailed plans of government departments and the municipalities.
5. During October, at the invitation of the Government of Canada, the Minister-in-Charge and the Co-ordinator, together with representatives from the other provinces, were taken on a short tour of the Eastern and Mid-Western States of the U.S.A., to examine first hand the progress in civil emergency planning being made in several States and cities. A visit was made to North American Air Defence Headquarters at Colorado Springs, where activities of this joint United States/Canadian operation were explained. At the conclusion of the tour a short informal meeting of the several Ministers was held at Winnipeg.
6. In December, a series of one-day conferences were held with elected municipal officials. The current concept of civil emergency planning was explained, with emphasis being given to the role of municipal authorities in the development of adequate plans and measures to minimize the effects of nuclear war and natural disaster. Additional detail related to these and other conferences held during the year is shown in Annex "A".
7. During the period under review, harmonious working relationships were maintained with other agencies engaged in survival planning, in particular, with the Emergency Measures Or-

ganization of the Government of Canada, and the Canadian Army.

8. The task of planning, organizing and training to minimize the loss of life and to maintain civil government during a national emergency was extensive.

9. The report which follows, covers the calendar year 1960, and is divided into five parts with supplementary annexes:

PART ONE—ORGANIZATION

Authority

10. The Alberta Emergency Measures Organization (Alberta EMO) was established under the authority of the Alberta Civil Defence and Disaster Act and, particularly, by Order-in-Council 1016/60 of 5 July 1960. In accordance with the terms of the Order-in-Council, Alberta Civil Defence was reorganized to embrace the additional functions of co-ordinating and planning in the field of continuity of government during an emergency and renamed the Alberta Emergency Measures Organization (Alberta EMO).

11. The controlling, advisory, and administrative elements are:
    (a) **The Cabinet Committee on Emergency Measures**—remaining the same as in 1959 annual report.
    (b) **Minister-in-Charge**—Honourable L. C. Halmrast,
    (c) **Standing Committee on Emergency Measures**—consisted of the Premier (or his representative); the Regional Officer of the Federal Emergency Measures Organization; the Commander, Alberta Area, Canadian Army; the Officer Commanding, "K" Division, RCMP (or his representative), and the Co-ordinator, Alberta Emergency Measures,
    (d) **Co-ordinator**—Arnold J. Lavoie,
    (e) **Co-ordinating Committee**—consisted of the Deputy Ministers of all Government Departments; the Co-ordinator and Deputy Co-ordinator, Alberta EMO; and other members designated by the Minister. Emergency plans for departments of government and other agencies were examined by this committee.

Alberta EMO Zones

12. For administrative and operational purposes, the Province was sub-divided into four geographic Zones. During a national emergency each Zone Headquarters would function—to the extent necessary—as a centre of emergency government, under the control of the provincial government headquarters. It was planned that Government Departments (Federal, Provincial and Military) appoint representatives to prepare zonal plans as they affect their emergency roles in the Zones, to man these Headquarters during exercises, and on a full time basis during an actual war emergency.

13. Zones were established as follows:
    (a) **Peace River Zone**—the northern portion of the Province, with headquarters located in Grande Prairie;
    (b) **Northern Zone**—an area surrounding the Edmonton Target Area, with headquarters located in Edmonton;

(c) **Central Zone**—an area surrounding the Calgary Target Area, with headquarters located in Calgary;

(d) **Southern Zone**—the southeastern portion of the Province, which included the cities of Lethbridge and Medicine Hat, with headquarters located in Lethbridge.

14. The functions of the EMO Zone officers were to provide guidance and assistance to municipalities in the development of their survival programs, and to co-ordinate the Zone plans for emergency government. Zone officers made 490 visits to municipalities to give assistance and advice, and to encourage progress in organization.

Municipal Organization

15. Arrangements for Emergency Measures and Civil Defence at municipal level were considered to be a normal extension of existing government and other agencies, to deal with disaster situations. Therefore, the responsibility for the development in a municipality rested with the Mayor and Council. Alberta EMO gave all possible assistance and co-operation in stimulating municipal programs.

16. To date, 180 municipalities established, or were in the process of establishing, Civil Defence Organizations. (See Annex "B" for details.)

Liaison With Federal EMO and The Canadian Army

17. Under PC 1959-656 (Civil Defence Order 1959), the Federal Government made a re-allocation of civil defence responsibilities at the federal level. These changes became effective on 1 September 1959.

18. In order to detail the division of responsibility for National Survival Operations between the federal, provincial and municipal authorities in Alberta, "Joint Directive No. 60/1" was issued on 2 April 1960. The Directive specifies the levels and scope of liaison between the three agencies mentioned, to ensure adequate and effective planning.

PART TWO—CONTINUITY OF GOVERNMENT DIVISION

General

19. It was recognized that planning for the maintenance of representative government during an emergency was the fundamental element of civil emergency planning. During 1960, planning was commenced, to develop a capability in all government departments and agencies to continue effective operation during an emergency.

Departmental Emergency Planning Officers

20. A senior official was appointed by the Minister of each department of government to be responsible for the preparation of emergency plans for the continuity of departmental activities in the event of a national emergency. The heads of the following agencies also appointed emergency planning officers:

(a) Alberta Liquor Control Board,

(b) Alberta Government Telephones,

(c) Oil and Gas Conservation Board,

- (d) Public Utilities Board,
- (e) Research Council of Alberta,
- (f) University of Alberta,
- (g) Workmen's Compensation Board.

21. A special Orientation Course was conducted for Emergency Planning Officers, to introduce them to the nature of the work, and planning was commenced by these officers in their departments.

22. The basic planning matters under consideration were as follows:
    - (a) An examination of the functions of the department, to determine those which must be continued, expanded or suspended during an emergency;
    - (b) The initial preparation of departmental plans covering the organization and training for the continuity of functions of the department;
    - (c) The preparation of plans for the preservation of documents, records and information required for the protection of the rights and interests of individuals and for the effective operation of the department during an emergency;
    - (d) The establishment of a "Succession" program, for those officials who are regarded as key personnel in the department's emergency operation, to ensure successors during a survival operation.

23. In addition to the foregoing, further responsibilities were assigned to certain departments. These were emergency functions related to normal tasks performed by the departments and have been elaborated in Volume One of the Alberta Survival Plan which was issued to all concerned, including municipal authorities, in November 1960.

Regional Emergency Government Headquarters

24. The Government of Canada announced that a building—which will provide the occupants with protection against the effects of radioactive fallout—will be constructed in each Province to accommodate the necessary representatives of federal and provincial governments and the Canadian Army, who will, if necessary, jointly conduct survival and government operations from this headquarters. It is understood that the building in Alberta will be located at a site removed from the two major urban centres.

Relocation Accommodation

25. A survey was commenced during the latter part of the year to determine the availability and suitability of accommodation from which government departments and agencies could conduct operations during a national emergency. The survey will have regard to the vulnerability of the two major urban areas and proposes the utilization of accommodation outside of these centres.

Emergency Health Services

26. Responsibility for the planning and development of Emergency Health Services was transferred from Alberta Civil Defence

to the Department of Public Health on 1 April 1960. A committee of professional medical advisors was used for advice and assistance in programing and development.

27. **Hospital Disaster Planning**—During the year visits were made to hospital authorities throughout the Province to assist in the development of hospital disaster plans. To date, twenty-five hospitals have completed disaster plans, and five plans were exercised during 1960, one of which was a major hospital in the City of Edmonton. Sixty-nine additional hospitals are engaged in the preparation of such plans, including three major hospitals in the City of Edmonton. The City of Calgary authorities have prepared a co-operative plan for local disaster, involving six major hospitals in that city.

28. **Training for Medical and Auxiliary Medical Personnel**—Training for these categories of personnel was continued at the Alberta Civil Defence School and the Canadian Civil Defence College. (See Annexes "C" and "D" for details.)

29. Instruction related to Emergency Health Services was given to students attending other courses at the Alberta Civil Defence School, and there was an indication that a number of hospitals in the Province would co-operate in giving additional training to selected volunteers for municipal Emergency Health Services.

30. **Training Supplies**—Supplies continued to be provided by the Government of Canada for use in the civil defence first aid and home nursing training program.

31. **Operational Supplies**—The provision of medical supplies for use during an emergency was the responsibility of the Department of National Health and Welfare. Such supplies were stored under the administrative control of the Department of National Defence and during 1960 supplies began to arrive in Alberta.

Emergency Welfare Services

32. In October, the Department of Public Welfare assumed responsibility for the planning and development of Emergency Welfare Services.

PART THREE—TRAINING DIVISION

Schools

33. An active program of training continued. During the year, many individuals attended courses of instruction designed to assist in the development of civil defence in the municipalities.

34. Courses of instruction were undertaken at:
    (a) Canadian Civil Defence College, Arnprior, Ontario;
    (b) United States Civil Defence College, Battle Creek, Michigan;
    (c) Alberta Civil Defence School, Edmonton;
    (d) Several Alberta municipalities (Extension Schools and First Aid and Home Nursing courses);
    (e) Joint Atomic, Biological and Chemical Defensive Warfare School, Camp Borden, Ontario.

35. A total of 2,628 students received training under provincial auspices during 1960, making a grand total of 17,041 since

the inception of the program. In addition, municipalities conducted training, using their own resources. Tables showing the detail of courses and numbers of candidates, form Annexes "C" and "D" to this report.

Exercises

36. Eight exercises were conducted during the year, making a total of forty-one since the program commenced in 1950. Additional details relating to the exercises held during the year are contained in Annex "E" to this report.

37. Of special significance was Exercise TOCSIN 1960, held 3 May, when federal, provincial and military officials practiced joint operations at provincial, zonal and target area level. Ninety-eight Alberta municipalities also took part in the exercise. This exercise was conducted nationally, under the central direction of the Federal Emergency Measures Organization and lessons learned will be applied to a similar exercise to be held in 1961.

PART FOUR—ADMINISTRATION DIVISION

Costs

38. Approved expenditures were shared jointly by the federal, provincial and municipal governments, under the terms of the Financial Assistance Program.

39. In 1959, the federal authorities announced that 75% of all approved civil defence expenditures would be borne by the Federal Government. However, a ceiling of $275,000 of federal funds was set for Alberta, based on a rate of 25 cents per capita (Dominion Government 1956 Census). This amount covered slightly less than 50% of approved Civil Defence projects in Alberta.

40. In December 1960, the Federal Government made a reallocation of the federal funds not used by some provinces, and sufficient funds were allotted to Alberta to cover 75% of approved civil defence expenditures for the fiscal year 1960/61. This increased the federal commitment to Alberta for 1960/61 from the original $275,000 to an estimated $424,000, but did not establish a precedent for future years.

41. Alberta's civil defence costs to the end of the fiscal year 1959/60, as apportioned between the federal, provincial and municipal governments are detailed as follows:

	Federal Share	Provincial Share	Municipal Share	TOTAL
Expenditures from 8 Nov. 1950 to end of fiscal year 1958/59	$ 870,028.65	$1,352,133.92	$139,010.74	$2,361,173.31
Expenditures for fiscal year 1959/60	275,000.00	193,780.63	57,707.67	526,488.30
Grand Totals	$1,145,028.65	$1,545,914.55	$196,718.41	$2,887,661.61

42. Municipal expenditures in the table above are only those shared under the Financial Assistance Program. The total municipal expenditures for civil defence purposes were in excess of the figures shown, as some municipalities made additional expenditures not covered under the sharing program.

43. **Estimated Costs for 1960/61**—Civil Defence costs for the fiscal year 1960/61 are estimated as follows:

Estimated 1960/1961 provincial/municipal expenditures for civil defence (including D.P.W. expenditures)	$538,196.00
Less refund from federal government (75%)	423,989.00
Estimated net cost to Alberta 1960/61	$114,207.00

Public Information

44. A public information program was maintained during the year, and details of the program are shown as Annex "F" to this report. It was evident that increased information must be provided to the public and additional work is planned to ensure that every citizen will be aware of measures being taken for his safety, and those for which he must plan for his own preservation.

PART FIVE—CIVIL DEFENCE DIVISION

Alberta Survival Plan

45. The first volume has been produced and issued. Volume One—Planning Instructions, provided comprehensive guidance to government departments, municipalities and other agencies having a responsibility in civil emergency planning.

Communications Planning

46. With the issue of Volume One of the Alberta Survial Plan, the responsibility for emergency communications planning and development was undertaken by Alberta Government Telephones. A draft of an Emergency Communications Planning Guide prepared by Alberta Civil Defence, was under review by AGT, and will be issued when approved. The guide will establish the basis for the emergency communications plan for the Province, and will have regard to the utilization of all available communications media by the several agencies requiring service during an emergency, e.g., provincial and federal governments, the Canadian Army and municipal authorities.

Public Warning

47. Responsibility for the National Survival Attack Warning System (NSAWS) was assigned to the Canadian Army. The system in Alberta comprised a Provincial Warning Centre (PWC), in continuous operation, which was in direct communication with the Federal Warning Centre (FWC). Information was received from the FWC in sufficient detail to enable the PWC to be aware of all significant aircraft approaching, or over, Canada. Siren networks in Edmonton, Calgary, Red Deer and Lethbridge are to be improved, expanded and brought under the centralized operating control of the Provincial Warning Centre, thus enabling siren warnings to be activated with minimum delay. The initial "ALERT" warning may only be issued on the authority of the Prime Minister of Canada or his designated representative.

Target Area Organization

48. Progress towards joint planning and development by the several municipalities comprising the Target Areas of Edmonton and Calgary can be reported.

HQ Alberta EMO
Edmonton
31 December 1960

ANNEX "A" to
Alberta EMO
Annual Report 1960

CONFERENCES

During the year 1960, HQ Alberta EMO was represented at the following conferences:

(a) **Area Commander's Study Period (Canadian Army).** This study period was held 23-24 January 1960, and was attended by military personnel from the Alberta Area, Canadian Army (Regular and Militia), the RCN, RCAF and Federal and Provincial Government representatives.

(b) **Western Command/Provincial Ministers/Area Commanders Conference.** This conference was held 19-20 April 1960, and was attended by the Military and by the Provincial Ministers-in-Charge of Emergency Measures/Civil Defence and their staffs, from the four western provinces.

(c) **Conference of Mayors/Reeves/Wardens from Western Canada (Edmonton 4-7 October 1960).** This conference was arranged by Federal EMO, and was attended by 70 municipal representatives from the four western povinces, the Yukon and the N.W.T.

(d) **Conferences with Municipal Representatives.** In December 1960, conferences with municipal officials (mayors, reeves, etc.) and Civil Defence Directors were held in each Zone. The Minister-in-Charge, Alberta Emergency Measures, was in attendance, and the Co-ordinator acted as Chairman. Conference details were as follows:

Zone	Location	Date	Officials in Attendance
Northern	Edmonton	7 December	120
Southern	Lethbridge	9 December	49
Central	Calgary	14 December	90
Peace River	Grande Prairie	16 December	46
Total in Attendance			305

ANNEX "B" to
Alberta EMO
Annual Report 1960

MUNICIPAL ORGANIZATION

Municipalities now organized, or in the process of organizing for civil defence are:

(a) Cities	9
(b) Towns	69
(c) Villages	66
(d) Municipal Districts	27
(e) Counties	9
Total	180

ANNEX "C" to
Alberta EMO
Annual Report 1960

TRAINING DETAILS

CANADIAN, U.S. AND U.K. CIVIL DEFENCE COLLEGES

Canadian Civil Defence College

1. Since the inauguration of Civil Defence in Alberta, candidates have been selected every year for training in various aspects of civil defence at the Canadian Civil Defence College, Arnprior, Ontario.
2. The following table shows the courses held at the Canadian Civil Defence College and the number of Alberta candidates trained at these courses.

	Number of Courses		Personnel Trained	
Type of Course	1960	Total to Date	1960	Total to Date
Staff—Orientation	4	37	12	83
Staff—Planning	2	11	8	52
Staff—Operations	1	12	4	43
Staff—General	4	4	7	7
ABC Warfare	Nil	12	Nil	19
Nuclear Staff Officers (Survival)	1	1	1	1
Senior Wardens	Nil	7	Nil	26
Rescue Instructors—Part A	5	35	4	59
Rescue Instructors—Part B	5	36	5	62
Rescue Instructors—Part C	6	22	5	41
Rescue Conference	1	1	2	2
Tactical Fire Study Forum	Nil	3	Nil	17
Fire—Orientation	Nil	1	Nil	4
Radiological Defence	5	24	7	68
Radiation Monitoring—Instructors	1	1	3	3
Radiation Monitoring—Fire and Police	2	6	2	16
Tactical Study Forum	Nil	4	Nil	15
Transportation Forum	Nil	1	Nil	2
Traffic Engineers Forum	Nil	1	Nil	3
Industry Forum	Nil	2	Nil	9
Engineers Forum	Nil	5	Nil	16
Agrologists Forum	Nil	1	Nil	3
Women's Course	Nil	1	Nil	11
Communications	2	14	8	72
Disaster Study Forum	Nil	3	Nil	13
Teenagers Course	1	1	5	5
Newsmen's CD Conference	Nil	2	Nil	22
Pilot Police Forum	Nil	3	Nil	9
Shelter Course	Nil	1	Nil	4
General Instructors	Nil	16	Nil	37
CD Officers—Instructors	Nil	4	Nil	9
Educational Forum	Nil	1	Nil	6
Prov. CD Co-ordinators Conference	Nil	6	Nil	51
Training Officers Conference	Nil	3	Nil	16
Directing Staff Conference	1	4	1	41
Civil Air Patrol Forum	Nil	1	Nil	1
Clergy Conference	Nil	7	Nil	7
Conference—Mayors and Reeves	1	2	16	19
CD Working Party	Nil	1	Nil	1
Technique of Instruction	3	3	5	5
Health				
ABC Medical	Nil	3	Nil	22
Nurse Educators	2	10	9	46
Nurse Specialists	1	1	4	4
Casualty Simulation	Nil	7	Nil	23
Casualty Simulation—Instructors	1	5	2	17
Physicians and Dentists Indoctrination	2	9	12	60
Pharmacists Indoctrination	Nil	7	Nil	40
Health Services Conference	Nil	2	Nil	40
Conference of St. John Ambulance Instructors	Nil	1	Nil	11
Veterinarians Indoctrination	1	2	2	5
Welfare				
Welfare—General	Nil	18	Nil	66
Welfare—Emergency Feeding	2	12	6	58
Welfare—Emergency Lodging	1	6	3	22
Welfare—Emergency Clothing	1	6	4	20
Welfare—Registration and Inquiry	Nil	12	Nil	61
Welfare—Personal Services	1	5	1	15
Welfare—Instructors	Nil	1	Nil	7
Welfare—Directors Conference	1	2	2	3
Totals	58	409	140	1,400

U.S. Federal Civil Defence College

3. To date, the Canadian Government has sponsored 15 Alberta candidates to U.S. Federal Civil Defence Colleges:

a. Battle Creek, Michigan (Instructors Course)	1 candidate	(1960)
b. Battle Creek, Michigan (Health Course No. 2)	1 candidate	(1957)
c. Battle Creek, Michigan (Evacuation Course)	3 candidates	(1955)
d. Battle Creek, Michigan (Evacuation Study)	4 candidates	(1955)
e. Brooklyn, New York (Radiological Monitoring)	1 candidate	(1959)
f. Olney, Maryland (Rescue Instructors)	2 candidates	(1956)
g. Olney, Maryland (U.S. Staff Course)	3 candidates	(1952)

U.K. Civil Defence College

4. To date, the Canadian Government has sponsored four candidates to attend the United Kingdom Civil Defence Staff College, Sunningdale Park, Berkshire, England.

ANNEX "D" to
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TRAINING DETAILS

ALBERTA CIVIL DEFENCE SCHOOL

1. Provincial Civil Defence training began in September 1951. From that date, the Alberta Civil Defence School has provided various courses of training for selected candidates from the municipalities.

2. The following table shows the courses held at the Alberta Civil Defence School and the total number of candidates trained.

	Number of Courses		Personnel Trained	
Type of Course	1960	Total to Date	1960	Total to Date
General Instructors	Nil	9	Nil	240
Nurses ABC	Nil	1	Nil	90
Fire Instructors	Nil	12	Nil	282
Summer School for Teachers	1	9	189	1,151
Rescue Instructors	4	20	87	434
Orientation	3	29	83	748
Welfare	3	18	102	581
Government Inspectors (Orientation)	Nil	1	Nil	36
Alberta Forest Rangers (Orientation)	Nil	2	Nil	133
Pharmacists (Technicians, Blood Donor Clinics	Nil	1	Nil	6
Agriculturists (Orientation)	Nil	2	Nil	199
Nurses (Orientation)	2	5	108	206
Radiation Monitoring	4	18	112	407
Traffic Control Forum	Nil	1	Nil	33
Control Room Procedures	Nil	10	Nil	387
Technique of Instruction	1	1	16	16
Federal and Provincial Orientation	1	1	68	68
Totals	19	140	765	5,017

3. Military personnel have taken advantage of courses at the Alberta Civil Defence School, and candidates have attended from Regular and Militia Units of Western Command and Alberta Area, Canadian Army, also from the RCAF stations in Alberta. In addition, the Canadian Army made use of the facilities of the Alberta CD Rescue School and conducted training courses as follows:

Type of Course	Courses Conducted
Basic Rescue (5-day course)	16
Basic Rescue (4-day course)	6
Basic Rescue (2-day course)	4
Total	26

4. **Training of Civil Defence Firemen**

(a) The five Civil Defence fire pumpers alloted to Alberta in 1953 by the Federal Government were used during the summer months to train Civil Defence auxiliary firemen and Municipal volunteer firemen throughout Alberta. During the winter months, when it is not practicable to undertake training, the pumpers were allocated on a temporary loan basis—to selected municipalities.

(b) In 1960, training on Civil Defence fire pumpers was given 32 Civil Defence auxiliary firemen and to 50 members of municipal volunteer brigades. The total number of firemen trained to date is 1,948 Civil Defence auxiliaries and 2,357 municipal volunteer firemen, making a grand total of 4,305.

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TRAINING DETAILS

ALBERTA CIVIL DEFENCE EXTENSION SCHOOLS

Alberta Civil Defence Extension Schools commenced on 4 March 1957. The following table shows the number of candidates trained in the various courses.

Type of Course	Number of Courses 1960	Number of Courses Total to Date	Personnel Trained 1960	Personnel Trained Total to Date
Orientation	10	24	469	1,007
Casualty Simulation	Nil	1	Nil	11
Radiation Monitoring	Nil	5	Nil	150
Control Room Procedures	1	1	34	34
Extension School for Student Psychiatric Nurses (Oliver)	1	1	23	23
Rescue	Nil	2	Nil	47
Totals	12	34	526	1,272

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TRAINING DETAILS

MUNICIPAL RADIATION MONITORING COURSES

Name of Municipality	Number of Courses 1960	Number of Courses Total to Date	Personnel Trained 1960	Personnel Trained Total to Date
Peace River Zone				
City of Grande Prairie	1	1	10	10
Town of Peace River	Nil	1	Nil	5
Town of Fairview	Nil	1	Nil	13
Totals	1	3	10	28
Northern Zone				
City of Edmonton	Nil	1	Nil	49
City of Camrose	2	4	13	48
Town of Lacombe	1	1	14	14
Town of Rimbey	1	1	19	19
Town of Leduc	1	1	12	12
Town of Vermilion	1	1	15	15
Town of Fort Saskatchewan	1	1	8	8
Town of Stony Plain	Nil	1	Nil	13
Village of Ryley	Nil	1	Nil	7
Village of Holden	1	1	18	18
Village of Spruce Grove	1	1	11	11
M.D. of Vermilion River No. 71	Nil	1	Nil	14
Totals	9	15	110	228

Type of Course	1960	Total to Date	1960	Total to Date
Central Zone				
City of Calgary	1	1	50	50
City of Drumheller	1	1	12	12
Town of Claresholm	2	3	23	37
Town of Vulcan	1	1	12	12
Town of Hanna	1	3	11	24
Town of Nanton	1	1	13	13
Town of Didsbury	Nil	2	Nil	30
Town or Morrin	Nil	1	Nil	13
Town of Okotoks	Nil	1	Nil	13
Town of Fort Macleod	1	1	12	12
M.D. of Mountain View No. 49	1	1	23	23
M.D. of Kneehill No. 48	1	1	18	18
Totals	10	17	174	257
Southern Zone				
City of Lethbridge	Nil	2	Nil	25
Town of Cardston	1	2	13	22
Totals	1	4	13	47
Grand Totals for the Province	21	39	307	560

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TRAINING DETAILS

CIVIL DEFENCE FIRST AID AND HOME NURSING

1. **First Aid.** During the year 1960, 28 Civil Defence First Aid Courses were conducted by St. John Ambulance Association, training 639 candidates. Since January 1949, a total of 3,823 candidates were given first aid training—the cost being shared by the Federal and Provincial Governments.
2. **Home Nursing.** During the year 1960, 27 Civil Defence Home Nursing Courses were conducted by St. John Ambulance Association, training 475 candidates. Since the inception of the program in 1957, a total of 1,205 candidates were trained, on the same basis as described above.
3. In addition to the Civil Defence program, St. John Ambulance Association have trained, in their own regular program, 7,365 candidates in First Aid, and 2,475 in Home Nursing, in the year 1960. The grand total of persons trained since 1 January 1949, in First Aid and Home Nursing, is 79,254.

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TRAINING DETAILS

CIVIL DEFENCE EXERCISES

1. Since November 1950, forty-one exercises have been conducted in the Province. Of this number, the following eight exercises were conducted during 1960:
   (a) **Exercise Tocsin**—3 May (National Exercise).
   (b) **Hospital Disaster Exercise**—25 May (St. Joseph's Hospital, Vegreville).

(c) **Calgary Amateur Radio Association Field Day Exercise**—25-26 June (to test emergency power unit and amateur radio facilities).

(d) **Exercise "Evac 1", Lethbridge**—10 September (125 Civil Defence volunteers took part, assisted by City Police and the RCMP). The aim of the exercise was to study welfare and traffic control problems.

(e) **Hospital Disaster Exercise**—26 September (Viking Municipal Hospital).

(f) **Hospital Disaster Exercise**—1 October (Cardston Municipal Hospital) } Joint Exercise.

(g) **Hospital Disaster Exercise**—1 October (Cardston Blood Indian Hospital) } Joint Exercise.

(h) **Hospital Disaster Exercise**—19 October (Edmonton General Hospital).

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ALBERTA EMO PUBLIC INFORMATION PROGRAM

1. In order to keep the need for emergency planning and civil defence before the citizens, Alberta EMO maintained a diversified public information program.
2. **"The Circular".** During 1960, five issues of "The Circular" were published. This periodical received wide distribution and kept municipal officials and Directors of Civil Defence informed of developments in the field of Emergency Measures and Civil Defence.
3. **Films.** From HQ Alberta EMO, films were issued to CD Directors throughout the province on request. Eighty titles were available, and 40 of these were in constant demand. During 1960, requests for films averaged two per day, making over 700 showings during the year.
4. **News Releases.** In 1960, major news releases were issued to all newspapers, radio and TV stations, approximately once a month. In addition, many personal contacts were made with reporters and news directors.
5. **Pamphlets**
   (a) The Federal EMO pamphlet "Your Basement Fallout Shelter" was distributed to all municipalities, and HQ Alberta EMO will fill requests by individuals for the booklet.
   (b) Various other pamphlets received wide distribution. Ten thousand copies of "Your Emergency Pack" were given away at exhibitions. Other free pamphlets are:
      "Fire Safety in the Home"
      "Emergency First Aid"
      "Radioactive Fallout on the Farm"
      "Casualties from Nuclear Weapons", etc.
6. **Family Fallout Shelter Exhibits.** Full-scale model family fallout shelters were constructed for display at the Calgary Stampede and the Edmonton Exhibition. The City of Grande Prairie

erected a model family fallout shelter display for the Grande Prairie County Fair.

7. **Survival Information for Telephone Directories.** During 1960, negotiations were completed to place survival information in the six telephone directories published in the province.
8. **Wallet Cards.** One hundred thousand copies of a wallet card containing survival information were produced in December 1960. The cards were available in quantity from HQ Alberta EMO.